Yaron Dycian on Cracking the Code of Water Waste in Buildings | Transcript

00:02
Speaker 1
Welcome to Green Building Matters, the original and most popular podcast focused on the green building movement. Your host is Charlie Cicchetti, one of the most credentialed experts in the green building industry and one of the few to be honored as a lead fellow. Each week, Charlie welcomes a green building professional from around the globe to share their war stories, career advice, and unique insight into how sustainability is shaping the built environment. So settle in, grab a fresh cup of coffee, and get ready to find out why. Green building. Green Building Matters, everybody.

00:34
Speaker 2
Welcome to the next episode of the Green Building Matters podcast. Can't believe it. 400 interviews in all over the world, and I just get to meet some really amazing people doing this green building work that's my specialty. We've been talking more technology, though, in the last couple years. Just makes sense, right? And that kind of guest today. So, Aaron, how you doing today and welcome to the podcast.

00:55
Speaker 3
Doing great, and thanks for having me.

00:57
Speaker 2
So I know you're over in Israel. Can't wait to talk about your company and just what you're doing with water intelligence. But take us back first. So where did you grow up and. And go to school?

01:07
Speaker 3
It's mixed education, some in Israel, some in New York, and some in California. As a kid.

01:15
Speaker 2
Okay. Yeah. Did you have any early influence about sustainability or, you know, when did that first start showing up for you? Maybe.

01:23
Speaker 3
Yeah, well, you know, I come from a very arid part of the world, so it's always been water conservation has always been a big deal ever since I was a kid. You know, my mom used to tell me, hey, you know, make you close that tap fully and don't waste water. It was always a thing. So, yes, this is very early on. Everybody here gets that.

01:44
Speaker 2
Okay. You just have to. From necessity. Now tell us a little bit about maybe early career. What were you doing early in your career, it looks like on the product side, right?

01:53
Speaker 3
Yeah, Yeah. I was mostly focused on products, so identifying needs, you know, what customers need, what pains they need to solve, and how technology can do that. I actually. My first company I worked for was the company that invented the ethernet switch. So that was a while back, you know, back then it was networking was kind of the thing, right? It was building the wires, building the. The plumbing, if you will, for communication. And I actually remember having a conversation with one of my colleagues there, you know, so, you know, we're towards the end of my work at that company before I switched on, but it was, you know, so we've got the world really wired. Things are connected. But what do you do with this? And that was, I'm talking, you know, early 90s. What do you do with this?

02:42
Speaker 3
And Amazon was just becoming a bookseller at the time. It was fun to buy books online, but we couldn't figure out this was going to change the world. And it did. We know it did.

02:53
Speaker 2
Oh, that's awesome. I love that. Well, so you got the product side, the technology side. I saw you light up there around some technology, you know, as you kind of look on this career, though, I mean, have you had any kind of mentors along the way? I look at mentors sometimes someone you see from afar, read their material, really inspire you. Sometimes it's someone that has

lunch with you, challenges you, maybe opens a door. Have you had any mentors?

03:14
Speaker 3
Yeah, yeah, A few of my managers were definitely mentors early on in my. In my career. Definitely influenced me, made me think differently, challenged me, helped me understand how to think about problems and how to solve them and break them down. You know, take a big problem and turn it into multiple smaller problems that you can tackle one by one. Because if you try to tackle the whole big problem, your head spins and it's too complicated. So slicing it up into the salami of small problems was definitely one of the things I learned.

03:48
Speaker 2
I love that. The salami of small problems. You're right. Otherwise it can be too overwhelming. Right. So that's great wisdom there. One more look back. I like to ask my podcast guests, you know, what's on the highlight reel? What are some of your proudest accomplishments so far?

04:02
Speaker 3
Wow. You know, I've always tried to do things that people have not done before. So I always pride myself on coming up with a new idea for a new thing that maybe people even didn't know was a problem. All sorts. Right. Back in those days of Ethernet switching, it was a black box and network admins just did not know what was going on. All the existing network monitoring tools were blind because of the architecture of the switch relative to a network. And so I came up with an idea and we turned it into a product which was hugely successful. And then, you know, a few years ago, I moved into spectroscopy for farmers. So spectrometers are kind of relatively large desktop sized machines that measure the chemical composition of produce.

04:57
Speaker 3
And we came up with an idea of doing this on a very small scale, like a tiny device that you could carry around in the field, and it would optimize your yields without all the difficult challenge of collecting samples and sending them to a lab. And waiting three days for the results to come back. So, you know, that was great. And there's more. I mean, that was kind of always my thing to go figure out. Here's a problem, here's a different way to solve it, which is better and can help people.

05:28
Speaker 2
Where do you think you get that from? To choose a path that maybe no one's gone down. Is that your creative outlet? It sounds like you're an inventor. Hopefully you consider yourself an inventor. You know, not everybody has that. Just wonder where that comes from for you.

05:41
Speaker 3
Well, I think it's a combination of my specific bringing, I guess, you know, the way I was brought up, I always wanted to be a scientist. Eventually I did study physics and math. So it's all about figuring out the world and trying to organize your thoughts around how does the world work. And it's also a cultural thing. So in Israel, people, we deal with big problems, right? I mean, unfortunately, we have some challenges that other people don't necessarily need to deal with. And these challenges require out of the box thinking and creativity and daring. So it was like it was part of it as well. So I think these are the two directions that got me into it.

06:25
Speaker 2
Thank you for that. Okay, so let's talk present day. Tell us what you've been building over the last seven years, where yet and where are you going?

06:32
Speaker 3
Yeah, so the problem we identified was water and buildings, which is kind of a. Sorry, what are you talking about? Kind of problem, which is exactly the point, right? It's always go figure out a problem that nobody's dealing with. And that's the reaction you'll get when you solve a problem nobody's dealing with because nobody's dealing with it. Nobody thought it was a problem. So water in buildings is surprisingly important in many ways. And it starts with maybe the most obvious, which is leaks. It's obvious to an extent, but nobody really gets the magnitude.

07:06
Speaker 3
The magnitude is tens of billions of dollars of damages global paid by insurance companies because somebody left a tap open and the sink is clogged, or a pipe burst in the wall, or somebody stuck a nail in the wall and there's a little gap and it starts to leak and seep into your building. So there's a million reasons why water leaks in the building, and there's a very significant financial aspect to the

damage. There is a second part, which is sustainability. So amazingly, about a quarter of the water getting into buildings goes to waste. A quarter. Yeah. And people go, well, I know that makes no sense. That sounds Too much? I mean, how can that be? And really, the reason is quite simple, actually. So if you think of legitimate use of water, it's very intermittent, right?

07:56
Speaker 3
You wash your hands for a minute, you take a shower for 15 minutes, you, whatever, your dishwasher works and it fills, water empties. It's all very intermittent. When a leak happens, it's 24, 7. It's continuous. And so even, you know, a standard toilet flush is around 2 gallons or so. A leaky toilet runs at about 100 gallons an hour for very long periods of time. So you can see how the orders of magnitude of legitimate versus illegitimate are like crazy. And that's where it comes from. And so waste is not just the waste of water, it's the waste of water. Water doesn't get to you magically. It's energy distribution, chemicals, filtration, post use, sewage treatment, all of these generate carbon.

08:51
Speaker 3
A single leaky toilet, from the example I just gave, will generate, over the course of a year, the same carbon emissions as a passenger car.

09:00
Speaker 2
Yeah, you were kind of getting there about like, I'm in Atlanta, Georgia. Like, technically, my house where I'm recording, I have a septic. But let's say you're a commercial building in Atlanta. The sewer rate is 8 times the water rate. So do you see that quite a bit?

09:17
Speaker 3
Yeah, absolutely. Sewage treatment is very expensive. And yeah, I mean, that's how you get to these crazy costs. So costs, carbon waste. It's all, it's all together in that simple thing of, you know, tap leaking. So, you know, that's the second. So I was kind of counting the issues associated with water and buildings. So it's waste, it's damage energy. Here's something we don't usually think about. Most of the energy in buildings is used for heating or cooling. If you're in a cold area, it'll be heating. If you're in a warm area, it'll be cooling. 30% of the energy goes to those. And that energy definitely in commercial buildings goes into the building through water. There are subfloor heating pipes or radiators to heat the building. There's a whole complicated water network that runs water in the building for H vac air conditioning.

10:14
Speaker 3
So all of a sudden, when you think of these things. Oh, and there's one more. I'm sorry, there's one more. There is health. So Janella is a lung type of pneumonia that comes through a bacteria that grows in water under a certain temperature conditions. Very dangerous. I think like a few weeks ago A number of people died in New York because of this. And it's kind of a wave. It happens and it happens again. So it's not a new thing. And that comes from water and pipes and buildings. So all of a sudden water is energy and cost and environmental sustainability and carbon emissions and all of these things are water and buildings. It's kind of your blood system in the building to a large extent. And so the problem that we attack, and now I'm closing all of these brackets that I opened.

11:05
Speaker 3
The problem that we solve is managing water properly in buildings. And we think it's a very important problem because it's anything from a lot of money to a lot of health to a lot of carbon emissions. So there's a lot of important attributes associated with it.

11:20
Speaker 2
Well, to our listeners, I know a lot of you are getting into buildings, sometimes designers, contractors. I've been working on LEED green building projects for 20 years and there is a lot more water moving through a building than you realize. And I just want to double down on everything Aaron is saying here. So, okay, so I remember many years ago, if you had leak detection, maybe you get better property insurance or something like that. So, so what are the extra benefits these days and is there a little bit of money towards installing some of your hardware and then your tech on top?

11:52
Speaker 3
Oh yeah, absolutely. So as you said, insurance will give you benefits, lower deductibles, sometimes lower premiums. It varies. I mean these are always one off. So there's no rule. But I've seen, you know, customers gain significant insurance benefits that will just on that more than pay for the system. You have the cost of wasted water, which is also significant. There's lead points. So lead will actually recognize water management for various attributes. One of our customers meta actually deployed wind in an office building and gained 15 points. 15 points in lead will take you from silver to gold or from gold to

bronze. It's a lot. It's probably some of the cheapest lead points you can get into your building.

12:41
Speaker 2
Love that. You're right. I mean there's lead for new construction. You can get some points there if you can work this into your design and then lead for existing buildings. Right, that's what you're talking about. You can go ahead and get all those performance points, but you have to track, it has to be calibrated. And so it sounds like your tech does that too. So. So yeah, part of your role is strategy at your company. So you know, I've seen on your website you've implemented some AI. So, you know, tell us some more about that part.

13:08
Speaker 3
Yeah, yeah. So I mean, AI is a big word, right? We are not an LLM, right? We're not OpenAI. We use AI in the capacity of identifying anomalies, patterns and trends. And so our technology looks at the water flow and it looks at the pattern that it creates as flow rates fluctuate over time. When you think of a simple example, I flush the toilet, what happens? The tank, you know, the valve opens, tank empties, and the valve that fills the tank also opens. And so it refills. So you get a really simple fill, stop type of pattern. That's a pattern. Now think of post lunch, lots of people coming back to the office, passing through the restroom, making coffee, washing their hands. You've got a dishwasher that's running. All of a sudden this becomes really complicated.

13:55
Speaker 3
And the technology looks at all of this and it says, this is normal. I learned it at this location. I've seen it before. It's anomaly detection learning mechanism. So identifies for each location what's normal and what's abnormal. And when it identifies anomaly, it can trigger actions. And the actions are pretty simple actually. It can be an alert and it can be a valve shut off. But the key is getting the right level of detection, maximum, you want 100%, and getting the minimal disruption with false alerts. It's always a balance. And anybody who tells you he's got 100% detection and 0% false alerts is wrong or misleading. And the key is getting that to be optimal. And that's what we're good at. There is also an element of identifying long term trends. So you're usually using this much, but now you're using that much.

14:53
Speaker 3
Things are changing, evolving. Maybe there's more people coming into the

building and they're requiring more water for some reason, but maybe that's not the case. So you take it both in the immediate leak detection sense as well as in the long term. Changing patterns and environments that can point you to the fact that you're now being inefficient with your water.

15:16
Speaker 2
I mean, it's expanded so much since, you know, 15, 20 years ago here. All right, so who's your ideal customer at this time? Maybe someone listening wants to has a need here.

15:27
Speaker 3
Yeah, well, we serve a number of market segments. The first is commercial buildings. Whether it's, you know, business or government, it doesn't quite matter. But commercial buildings, that's where the waste is massive. That's where you get a Commercial building, you could damage some significant things. We have customers who saved data centers. Just think of water flowing into a data center. Ouch. So one area is commercial, another area is multifamily residentials. They suffer a lot. Usually the damages won't be to able as big, but there will be a lot of smaller damages. So that's a big area for us as well. We've done some very significant projects. We do construction projects. Insurance companies really suffer in construction projects and they're really asking their customers to deploy leak mitigation solutions. And finally, we work with industrial customers.

16:24
Speaker 3
So companies like PepsiCo and other similar big brand names are using windows to optimize consumption on their manufacturing line. So a manufacturing line is not your commercial building. It uses a lot more water. And when it goes inefficient, that inefficiency translates into high cost. It also translates into actual productivity reduction because basically by monitoring the flow of water in the pipes, you can identify inefficiencies in the manufacturing procedures. So that's another thing we do. So these are the four market segments and in my mind all of them can benefit greatly from this kind of technology.

17:06
Speaker 2
That's fantastic. Maybe one more question. Present day Then we're going to take a look at the future. So energy costs are going up. Obviously you talked about pumping and heating and moving this water around a building. But the true water cost, right. In certain parts of the world, water probably not only costs

more, but the quality is not there. So people, so we knew, work all over, you know, where is water too cheap for people to even spend attention on this? And where is it right now? We might not even know. But there's a huge problem here. Can you give us a geographic, you know, just quick peek? Do you understand what I'm saying? Just, you know, where does water cost a lot more than maybe Atlanta, Georgia, where I live?

17:44
Speaker 3
Yeah. Well, by the way, for Atlanta, Georgia, there's an interesting story. You can google it. A couple of years ago, one of the large hospitals in Atlanta had a pie break. As a result, they had to shut down significant parts of the hospital which took the whole state's hospitalization capacity below the critical level. And the governor declared a state of emergency and all of that because of some pipe breaking. So you know, the damage could really spiral out of proportion for these things. All of a sudden the government's declaring state of emerg for the whole state.

18:24
Speaker 2
Here it is. It might be this much per thousand gallons of water on consumption. But it's hundreds of times more than that on the risk side, so. Makes sense.

18:34
Speaker 3
Yeah. I mean, take a look at Denver Airport a few years ago. H vac pipe breaks in the wall. They just renovated the place. $50 million of damages.

18:46
Speaker 2
Oh, my gosh.

18:48
Speaker 3
Yeah. So it's a combination, right? It's a combination of the damage and the cost of water in the US all around the prices, the cost of water is pretty similar. There are variations. It's not dramatic. And it's at the level where cutting that 25% will bring significant financial benefits. There are other countries that are moving. I will say also that water price is in general a challenge because it is underpriced. Water is such a. I mean, you can't, you know, if you have weak populations, you can't charge them a high cost for water. It's critical for living. But if you look at farming is gradually seeing an increase in water prices because it doesn't always

make. Farming is a business. If you look at the west, or I guess the Southwest, your Southwest, you've got the Lake Mead.

19:47
Speaker 3
Lake Mead has been drying up for the past few years due to very severe drought. The federal government has had to jump in and take over whatever they're trying to solve there because the states were just, you know, killing it and not managing to solve the problem. And I know that the federal government has managed, so it's a problem. And water prices are generally lower than they should be, and we are seeing an ongoing increase. So I would say the US Is at a point where it makes total financial sense to save water. Other parts of the world have gone the step forward in some areas. You'd think northern Europe, like, I think Denmark, Scandinavias have like crazy water prices two, three times as much as the.

20:34
Speaker 2
U.S. thank you for the geographic lesson. I learned something there. That's good stuff, man. Well, it's time for the future. So I love to ask my guests also, hey, what's next? What are you kind of excited about in this green building movement? What's coming?

20:48
Speaker 3
Well, buildings are an enormous part of our environmental footprint. I think the biggest, and so they really need to be dealt with. Global warming is happening whether it's man made or not man made. Regardless of that debate, reducing carbon emissions is a good thing. Saving water is not even an option anymore. If you live in the Southwest, you'd better save water. And if you look at Nevada or California, I mean, they have pretty strict regulations on what you can and cannot do with water. So I think overall Green buildings is important. It doesn't, you know, we should watch out, right. Not to overdo it. I think overdoing anything is dangerous, but building better buildings, taking care of unnecessary waste and things that are just, you know, fine. One hundred or thirty years ago we didn't think about these issues.

21:40
Speaker 3
They are issues and I think the green building movement, if done properly and is not done to unreasonable extremes, can bring a lot of value to the world.

21:51

Speaker 2
I second that. That's great. I spent a lot of time there and now I'm building a tech startup and I still love the green building movement. Let's go to some rapid fire questions to get to know you more. What would you say is your specialty or gift?

22:06
Speaker 3
I don't know what others say.

22:09
Speaker 2
If you ask three people close to you, what do you think they would say?

22:12
Speaker 3
Ability to get to the meat of the problem and offer solutions.

22:16
Speaker 2
Yeah, it sounds like breaking down the slices of salami there with the problem. Do you just continue to ask follow up questions and peel back the onion or any pro tip here to how do you not stop at the initial answer? I'd compare it to chatting with ChatGPT. Right. How do you, how do really go deeper? Any tips?

22:37
Speaker 3
Yeah. So first, my two favorite tools. One, slice it into smaller problems and the second one is keep asking why, you know, don't stop at the first answer because the first answer is also a source of your question. So why does something happen? Because X, well Y X and not Y well. And so keep drilling down until getting to the core requires multiple drill down levels. And that's my second favorite tool.

23:06
Speaker 2
Okay, I love that. I'm glad I asked. Do you have any good habits or routines that help you stay on point?

23:13
Speaker 3
Yeah, I love riding a bike.

23:15
Speaker 2
For distance or exercise or transportation or all the above?

23:20
Speaker 3
No, no, for sports.

23:21
Speaker 2
Oh, for sports or cyclists. Okay, good.

23:24
Speaker 3
Yeah, that's awesome.

23:25
Speaker 2
All right, there you go. Do you race?

23:28
Speaker 3
I used to. I'm kind of less competitive now.

23:31
Speaker 2
Okay, that's great. I like to ask about a bucket list. Not everybody has a bucket list. You know, sometimes it. Travel, adventure, write a book. I don't know, what are a couple things on your bucket list?

23:43
Speaker 3
Yeah, definitely travel. I can't even tell you where because there's probably a hundred places I'd like to go. But yeah, travel.

23:51
Speaker 2
Okay.

23:52
Speaker 3

Travel to exotic places. Well, Peru is definitely one of them. Right? Get to the high mountains in Peru.

23:58
Speaker 2
Oh, that'd be fantastic. Is there a book you'd recommend to our listeners, it doesn't have to be about buildings. If not a book, a documentary, just, you know, or a podcast. Just a pro tip here. I like this.

24:10
Speaker 3
Well Acquired is a great podcast. I love the Costco episode. It's really, wow. You go as a consumer and you buy at Costco and then you hear the story of how it came to be and some of the secret sauces and it's amazing. It's actually an amazing company. So that's one.

24:29
Speaker 2
All right, I'll put that in the show notes. Great, great recommendation there. Last two things as we start to wrap up. As you look back on your career, is there anything you wish you'd have learned earlier or any kind of career advice you wish you'd have learned earlier?

24:42
Speaker 3
Wow, good question.

24:43
Speaker 2
Yeah, I don't ask about regrets. This is just, hey, I wish I'd have known this earlier.

24:48
Speaker 3
Yeah, I think that it's all about the team. It's all about the team.

24:52
Speaker 2
Well, the team. That's good, man. Okay, last thing. So let's say someone's listening to our chat here and they're getting excited. They're just now jumping into this movement, this green building movement. I've done it a while. You've done it a while. Any words of encouragement for someone just now jumping in as we come to a close?

25:10
Speaker 3
Yeah, I mean, if you're excited by it, that's good. You don't need encouragement because you're excited by it. And I think it's really important. I think, choose your battles. Don't try to boil the ocean and do everything. Choose the right things to do in the building a low hanging fruit. General advice is always good. Go pick the ones that you can win and that can bring value quickly and easily grow from there.

25:34
Speaker 2
Well, everybody, we're going to put some links so you can check out this technology. If you have some properties, you got to implement this. Thanks for educating us today on water intelligence and how it's evolved so much. And you're right, it's not just the cost of water, it's that risk. And let's get some lead points along the way. So, Aaron, thank you so much for being on the podcast.

25:53
Speaker 3
Yeah, thank you. It's been fun.

25:56
Speaker 2
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