

# WE ARE ETH – Episode 25

## With Nicoletta Piccolrovazzi, ETH Zurich alumna and sustainability expert.

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[00:00:00] **Nicoletta Piccolrovazzi:** We live as if we had three planets to our disposal, and we have only one. And we are damaging that one planet already considerably. So this really needs a lot of new thinking a lot of the technologies are there, but the scaling up of the technologies their adoption at a global level is the problem.

[00:00:30] **Susan Kish:** In this episode, I'm talking with Nicoletta Piccolrovazzi, an ETH alumna and a sustainability expert. This is the We Are ETH podcast and I am Susan Kish, your host. Nicoletta, I am so jealous. I heard you just came back from a sabbatical. Can you tell me about that? How did you arrange that? This is wicked cool.

[00:00:59] **Nicoletta Piccolrovazzi:** Hi, Susan. First of all, I'm delighted to be here with We Are ETH. It's really a pleasure to be talking to you today. And yes, indeed, I had my first sabbatical in my entire life. So we took a trip with my husband of seven weeks.

And it's literally the first time that I have this amount of time off. My life was a race.

So far, I have to say, because I went from one thing to the other. For once, we enjoyed seven weeks of holiday, yes, in Asia.

[00:01:31] **Susan Kish:** And I should tell all the listeners here that Nicoletta and I have known each other for 20 years, more or less, because our kids went to the same school, our kids went to the same skating rinks and ballet classes, and they also for a while went to the same school and I think they're still friends.

[00:01:52] **Nicoletta Piccolrovazzi:** They're still in contact, yes. Actually, we probably had less contact than our kids do it in the last years. We need to catch up on that.

[00:02:00] **Susan Kish:** I think that's exactly right. Your name is Italian, but from what I heard in some of your biomaterials, you grew up in Austria. Can you talk about that? In the Styrian mountains?

[00:02:12] **Nicoletta Piccolrovazzi:** Yes, exactly. I was born to Italian parents, but born in Austria. And I grew up in Austria, in the middle of Austria, a place that is considered the green heart of Austria. The Styrian mountains in a small village called Pöls. It's hardly known to anybody. The main thing that was there was a big paper mill.

And my father actually managed that paper mill. So I literally grew up within the premises of a paper mill. So that, as you will see during our conversation, probably that shaped some of my thinking.

[00:02:51] **Susan Kish:** I can only imagine. I have these visions of you sliding down hills of wood chips.

[00:02:56] **Nicoletta Piccolrovazzi:** I did, yes. That was one of the most fun activities in the winter. Except that, of course, the woodchips would get into your trousers and into your shoes and would be very itchy. But other than that, it was a really, fun activity.

[00:03:12] **Susan Kish:** Fantastic. So sustainability, it sounds and from what I know and I've read and remember you've become a real global expert around the questions of sustainability in a circular economy. How did that interest start? What was the spark that got you interested in that area?

[00:03:33] **Nicoletta Piccolrovazzi:** Yeah, that was actually not from the very start. It, is something that I acquired over time. I'm a chemist, so my undergraduate studies were in chemistry. I studied at Padova University and then did my PhD at the ETH. And then started a, what I would call a normal career in a big company. And then later on, I had the opportunity to go into the sustainability field or to add sustainability to my role, and I am a very strong believer that sustainability is not a separate thing. It really needs to be based into the business roles, into R&D, into sales, into marketing.

All the functions need to adopt sustainability as one of their, compasses almost, to understand where they want to go in the future.

And so I had that opportunity, and I feel that it's really important that when an opportunity presents, you capture it and you take it. And so I had this opportunity with sustainability to create a program that was focused on sustainability within a big corporate.

[00:04:42] **Susan Kish:** by Big Corporate, I'm assuming you're meaning Dow, where if I read correctly you were there for over 30 years.

[00:04:48] **Nicoletta Piccolrovazzi:** Yes I, had a very boring career, actually. I'm, I sometimes listen,

[00:04:53] **Susan Kish:** That's not boring at all.

[00:04:54] **Nicoletta Piccolrovazzi:** I listen to this podcast and everybody has such an interesting career. And I must say my career is very linear. I spent, after my PhD at ETH, I spent 31 years with the same company and actually even in the same location. So I was fortunate

[00:05:11] **Susan Kish:** Oh in Horgen!

[00:05:12] **Nicoletta Piccolrovazzi:** Yes, in Horgen, Switzerland just across from Zurich and from the ETH And I was fortunate that I actually was able to develop my career at that location and I think the secret sauce to it is to take the opportunities when they arrive and make something out of it.

And yeah that's what I did. So I worked for Dow for 31 years. And just want to go back to what sparked this discussion here. In the last 11 years of my time at Dow, I was leading the technology and sustainability part of our partnership with the Olympic Games.

So Dow was an official top sponsor of the Olympic Games. And, we

[00:05:55] **Susan Kish:** Both the winter and the summer games?

[00:05:58] **Nicoletta Piccolrovazzi:** Both winter and summer games, and we

[00:06:00] **Susan Kish:** That must have been great to travel.

[00:06:02] **Nicoletta Piccolrovazzi:** Yes at times challenging, but yes overall great, greater than chemical sites. And so we,

[00:06:09] **Susan Kish:** I can see that.

[00:06:11] **Nicoletta Piccolrovazzi:** We were the official chemistry company of the Olympic Games, and wanted to, of course, position our products into the Olympic venues, like insulation materials or materials, for instance, for the synthetic turf on which hockey was played during the London Games.

And I also realized that this was a platform and an incredible opportunity to actually develop a sustainability initiative. And that's how I got into sustainability, realizing that I had a global audience to my disposal. And so we decided that we would not only position our products for the venues.

But that we would create a collaboration with our customers on sustainability and reduce CO2 emissions as a result of it and have them verified. So that's, how I got into the topic of sustainability.

[00:07:03] **Susan Kish:** So can you tell the story of a particular product where there's already been a standard product, right? But not necessarily developed with a carbon footprint in mind.

And you went back to them and said, okay, I need X for this Olympics. Can you do X with like minimal carbon footprint? And they said, Oh I guess so.

[00:07:28] **Nicoletta Piccolrovazzi:** Actually, it was not products that would go into the Olympics. What we would deliver to the Olympic Games was carbon reductions. So we were the official carbon partner of the Olympic Games. And we created projects with our customers that were in all kinds of different applications, from agriculture to packaging.

And these products were better than the incumbent technologies. And so they were products that were needed in the host geographies or in the regions. And

they, But they would outperform the incumbents by delivering lower carbon emissions. And so we would verify the carbon emissions.

And actually as a result of this collaboration, more than 6 million tons of CO2 reductions have been avoided. So it's, a program that, had a very significant impact at the global level Advancing also technologies, catalyzing sort of the implementation of better technologies. And we use the Olympic brand to, to market also the technologies to a certain extent or to, make the results of the program more known and interesting.

[00:08:39] **Susan Kish:** Nicoletta, the chemicals industry is a really interesting one when you talk about sustainability and circular economy. It's considered one of the hardest to abate sectors. We're in this annual round for the COP talks and this next one happening in Dubai, the role of the chemicals industry and the oil and gas industry are going to be in a very high profile.

What's your sense about chemicals, sustainability, reducing carbon footprint. How's that going to play out?

[00:09:13] **Nicoletta Piccolrovazzi:** To be honest, I think the chemical industry needs to accelerate and needs to go much deeper in the decarbonisation and faster.

I have to say on a positive note that things have changed ever since I have been involved in this. I started working on sustainability about 10 years ago. Some of the concepts then were really foreign.

When we talked to our customers to say we want to reduce CO2 emissions and then verify them together with you so that we can contribute them to the carbon reduction program of the Olympic Games, they really stared at us and were very surprised. Why would you do that? I think we have learned a lot in the meantime, but the progress is not fast enough.

Absolutely. The chemical industry needs to step up, both in terms of their energy use, as well as also considering some alternative materials, or reconsidering the life cycle of some of the materials, in terms of what happens at the end of the life of plastic, for instance.

So it's both the energy intensity as well as also using fossil fuels as feedstock in

[00:10:25] **Susan Kish:** a good point. Yeah.

[00:10:26] **Nicoletta Piccolrovazzi:** need to consider both parts of this.

[00:10:28] **Susan Kish:** Given your background as a chemical engineer and a chemist writ large, are you optimistic? Is this just a matter of redesigning things and it's pretty simple? Or is this really actually hard at a basic level?

[00:10:42] **Nicoletta Piccolrovazzi:** This is hard. This needs very new things. We need to rethink consumption. We need to rethink a lot of things. And for instance if, I look at the chemical industry, one thing that I believe is that we need to start using small nuclear reactors for chemical plants. We cannot do it

[00:11:02] **Susan Kish:** Small modular reactors

[00:11:03] **Nicoletta Piccolrovazzi:** Exactly.

And actually, the company I used to work for, Dow, has announced a collaboration in that space that we need kind of changes. So these are not just extensions of what we have done in the past. Maybe some of what we have done in the past will take us to further reductions of emissions, but not to net zero by 2050. So a lot more needs to happen. I am, I'm fluctuating between being optimistic and being scared. We are not going fast enough and I, from the sideline I keep telling people that we need to go faster and keep helping people where I can to make sustainability really practical.

That it gets integrated in all the functions. Yeah, so there shouldn't be a corporate sustainability department. Sustainability needs to be part of every function.

[00:11:53] **Susan Kish:** And it sounds like iterative change is probably not going to do it. It sounds like you need some sort of step change, radical change in order to get there.

[00:12:02] **Nicoletta Piccolrovazzi:** Yes, absolutely. In in terms of new business models also for some of the products that we're using now, I'm not just talking chemical industry, but also downstream in terms of fashion industry and so on we have a linear way of consuming and disposing of materials. And that linear way is just not going to be sustainable in the long term.

We are already borrowing now from the next generations. Yeah. In terms of resources, we live as if we would have three planets to our disposal. We don't. And,

[00:12:36] **Susan Kish:** That's a great phrase, can you repeat that again?

[00:12:40] **Nicoletta Piccolrovazzi:** Yes, We live as if we had three planets to our disposal, and we have only one, yeah? And we are damaging that one planet already considerably. So this really needs a lot of new thinking a lot of the technologies are there, but the scaling up of the technologies their adoption at a global level is the problem.

So we talk about circular economy, but how do you get all these small plastic packaging back. Yeah. Once you have distributed it

Supply chain. So a lot needs to happen in terms of scaling some of these new business models.

[00:13:21] **Susan Kish:** And it sounds like changing how we think about it, right?

[00:13:24] **Nicoletta Piccolrovazzi:** Yes, absolutely I think we need to really rethink our relationship with nature in this context too.

[00:13:32] **Susan Kish:** What do you mean by that?

[00:13:33] **Nicoletta Piccolrovazzi:** I, believe that we have got disconnected from nature. And we need to start realizing that nature is what we rely on, and so business needs to be producing, manufacturing in balance with nature, we cannot see nature as something that we can just extract from. It is something that we need to be in a certain symbiosis.

[00:13:59] **Susan Kish:** So it's an interesting point, right? I think the traditional view or the mindset is nature, something to be managed. And it sounds like what you're articulating is not, it's a perspective of not managing, but cooperating with understanding, protecting and acting as a steward, right?

[00:14:20] **Nicoletta Piccolrovazzi:** Aligning ourselves also with the needs of nature. Yeah.

[00:14:25] **Susan Kish:** Good point. But let's pivot. Let's talk about sports for a second. Because the whole sector around sports and these huge, I think you used

the phrase mega events, is a fascinating one, but that itself must also have a huge carbon footprint. What's the outlook there? What is your sense about those, sector?

[00:14:47] **Nicoletta Piccolrovazzi:** Yes. There are many reasons to question some of these mega events. And there are many things that can be done also to reduce the carbon footprint. I think the most important thing is the selection of the venues to make sure that we don't build new venues, but that we reuse existing venues.

And that might mean sometimes that an event takes place, not just in one country, but maybe takes place in adjacent countries where the venues are available.

And then we have, of course, the traveling of the spectators. I think that's also something that needs to... be considered and is actually probably the largest footprint of any of these mega events. Yeah so, more sustainable travel options for spectators. But more than anything, I think, sport has the role to play to help change people's minds.

There are people that we don't reach by talking about chemistry or by talking about science even, but there are people that we reach by talking about sport. We can talk about the fact that athletes need a healthy environment in order to perform, in order to compete.

And so we can help educate also some of the spectators on sustainability topics. And that's really the power of sport, that it goes beyond sport.

[00:16:08] **Susan Kish:** Fabulous. And I think very powerful. In terms of travel I keep reading about these folks who flew from New Jersey to Stockholm to hear concerts, right? From Beyonce because that actually was a more affordable and accessible ticket. But the carbon footprint of that is huge. Very good point.

Are you going to go to the Olympics? I have the sense you've been to going to the Olympic games for probably a good ten years or more. Will you be going to Paris?

[00:16:40] **Nicoletta Piccolrovazzi:** I think tickets are already sold out and I was not in time to get them, but I think I will go to the Paralympics. I actually enjoyed the Paralympics a lot. I saw them in London. a fantastic event. It's very engaging. Incredible also What these athletes are able to achieve and the tickets are much cheaper, so I can just promote the Paralympic Games as a fantastic event and a fantastic experience. And of course here from Zurich we can take the train to go to Paris, which is a big advantage.

[00:17:14] That is a great advantage. So: Career. You mentioned earlier that you were at Dow for 30 plus years. 31. And I don't think that's boring. I think that's, that is an amazing accomplishment in this time where people change so frequently and a real testament to your commitment to the company and sounds like you kept on having new jobs. You never were bored at the company, but what caused you to leave and what are you doing now?

[00:17:43] Okay, so actually, I retired from Dow. I don't want to give away my age, but

[00:17:50] **Susan Kish:** I never ask.

[00:17:51] **Nicoletta Piccolrovazzi:** But it was actually a retirement, but I also retired at the first opportunity that presented itself to me. I, after 31 years, I think I was ready to see a world outside of Dow. And so I have embraced that and I founded a company, a sustainability consulting company in the meantime, it's called Applied Sustainability GmbH.

It's about helping people make sustainability real, because sometimes things are so complicated. We read about all these frameworks and, all the things that we should be doing and the targets and science based or not science based. And so I want to help people make this real, integrate things into their daily life.

But in addition to, to working in, the company, I also started to work as a tutor with, students online. It's, a new experience for me. It was the first online course experience. So I'm tutor and it's a course about business and climate change again, helping business leader apply concepts and, make sustainability CO2 reductions really in their organization.

[00:18:59] **Susan Kish:** Let's talk about the ETH. mentioned that you got your PhD there. How did your experience at ETH prepare you for your career at Dow and prepare you for the work that you're doing now?

[00:19:13] **Nicoletta Piccolrovazzi:** Yeah. Actually, for my PhD, I was not quite sure where I was going to go. I was considering the US. And then I actually met by chance my professor

During an interview for a different program. And he called me up a few days later and said, have you ever considered coming to the ETH?

And I said, no. I had never considered that. And so he offered me the opportunity to come to the ETH, and that's, how it happened. And I must say at that stage, I was really quite naive probably. I didn't know much about the ETH. And I went and I talked to one of the professors at the institute in Padova and asked I got this offer to go to the ETH. What do you think? I had also an alternative offer in the US and, he said, yeah, but Nicoletta, it's the ETH. And to say, what are you even considering?

[00:20:13] **Susan Kish:** Right. It got X number of Nobel Prizes in chemistry. Of course you go.

[00:20:18] **Nicoletta Piccolrovazzi:** Yes. So that's how I got to the ETH what I really realized that it was a community, a very international community.



It was certainly my professor was an Italian professor, Professor Pino, and he had assembled a very international group. And so I really found my identity there a bit because I am international. My family is very European but, from different European countries. And so I, I really found an identity there with this international group.

It also I would say it prepared me also because a collaboration I realized was really important. The things that we had to do were sometimes quite challenging and I wasn't an expert in all of these. What I was able to do quite well at that stage was synthesis. But I knew nothing about catalysis.

I knew nothing about polymer science. And I had to do measurements of yeah, the speed of reactions, kinetics. And so I relied a lot on the other students in, the group to help me do my thesis. And I realized how important it was to be collaborative. and then I would say the last thing that it really taught me is what excellence means.

What, what does a leading, a world leading mean? It had so many instruments, so many things to our disposal. I came from a very good university in Italy, but I was amazed at what we could use in terms of latest technology and so on at the ETH. So it taught me what it meant to be really leading.

[00:21:54] **Susan Kish:** So the ETH, it sounds like you have strong affinity with it. You have great memories. You learned a lot. Right now the ETH is looking at a lot of programs around its sustainability, its footprint. again, there seem to be ways you can do that directly and indirectly, but what is the role and what advice would you give to the ETH as it looks around its sustainability and its carbon footprint?

[00:22:27] **Nicoletta Piccolrovazzi:** The ETH is a big brand, and so for me it's a bit similar to what we discussed beforehand on sport. The opportunity for the ETH is not just its own footprint. Its own footprint is small. But its reach is really big. I would like the name ETH to be associated by people directly or indirectly with sustainability, with more sustainable technologies, with students who are engaged in a lot of initiatives.

I think it's important that the ETH focuses on the own footprint, but the opportunity goes much beyond that. It goes in, really changing the perception of, people on, the ETH brand also. So coupling this brand with sustainability. But this is my desire of what I would like to see from the ETH.

this brand will be augmented by an increased focus on sustainability, on more sustainable technologies. Because after all, we need technologies that will exist in the future. Who wants technologies that are not sustainable?

[00:23:36] **Susan Kish:** We have a set of closing questions that we like to ask and I would just to through those and again, to thank you for coming on. So first off, what are the books that you're reading? What are the books stacked at your bedside table, whether it's on your Kindle or whether it's the actual books?

[00:23:58] **Nicoletta Piccolrovazzi:** I have always quite a few books at the same time, and I'm also not just reading books, I actually really like podcasts. I am not a very good reader, I have never been a good reader, and so podcasts help me too. And I would say there is always a mixture of novels and sustainability, I always have books on sustainability on the go.

And in terms of one of the best books that I have read in recently on sustainability is the it's called The Ministry of the Future and it's by Kim Stanley Robinson. And the reason why I also like to mention it here is that it actually, a lot of it it takes place in Zurich. So it's really relevant for us to read that, and it's a kind of futuristic novel that that tells us how in the end we solve this climate crisis. And it is very well researched. So that is one that that I'm reading or that I have just read.

And then I have a number of podcasts that I'm listening to. One of my favorite one is the one called Outrage and Optimism. It's by Christiana Figueres she is of course the climate leader that managed to broker the Paris Agreement. And then so her podcast is very interesting and very up to date on the latest topics in, the climate change issue.

[00:25:22] **Susan Kish:** when you were a little girl and living on this paper and pulp factory in a village in Styria, what did you dream about being when you grow up?

[00:25:33] **Nicoletta Piccolrovazzi:** I didn't have one specific profession in mind, but I think I wanted to do something related to engineering or chemistry or architecture, something science related. And I think I wanted something also where I would have a certain authority, where I would be able to lead a group or whatever. And I have reflected on that, why this was quite a lot.

when I was a little child my father would take me from time to time to go and look at the factory, if everything was running smoothly, typically after dinner. He had a lot of authority. People would listen to him, would respect him. And I somehow thought, okay, I want that too.

[00:26:16] **Susan Kish:** How does that happen? Sounds like your positions were such that you had both leadership, you had people who directly reported to you, but it also sounded like you had places where you had to lead in indirect ways.

[00:26:30] **Nicoletta Piccolrovazzi:** Yes, indeed. I think it's really important that you learn both skills as a leader, direct people management and learn the ropes of how to do that. But then also leading through influence. I had direct leadership responsibility of 20 plus engineers working in technical service.

One thing that I learned for me was really important to focus on people's strengths. So many of our people management processes help us identify weaknesses in people and help them get training so that they can make up for these weaknesses. But, you can really not do that very effectively.

I think it's much more effective if you identify people's strengths and help them maximize use of these strengths, because the strengths will stay with you in any situation. And, so that was really a mantra that I very much used, focusing on people's strengths, and then matching them with other people who had complementary strengths to make up really important and effective teams.

And then also helping people sometimes see the purpose behind the task, yeah? Rather than just focusing on the task, elevate them from time to time and give them a vision, give them a very lofty goal or something that they could rally around. And, then perform even better. So that, was for me the, sort of direct people leadership learning.

But then also, of course, as you said, Susan leading by influence. That was really important in the program that we built with the Olympic Games because it was such a multi stakeholder program. We worked with the Olympic committees. We worked with the organizing committees of the games. We worked with our customers with sometimes also government, with NGOs.

We had to bring everybody together. And again, for me there, it is finding the purpose and helping people see their bigger purpose. And setting a goal where we said, okay, we need to deliver 6 million tons of CO2 emission reductions and not just a 100 000. And that helps you to bring people along and, of course also communicate constantly with these people.

So these were some, great experiences, I have to say.

[00:28:51] **Susan Kish:** Listen, Nicoletta, thank you. Thank you so much for spending your time and sharing your stories.

[00:28:57] **Nicoletta Piccolrovazzi:** Thank you, Susan. It was a pleasure to be here.

[00:29:01] **Susan Kish:** I'm Susan Kish, host of the We Are ETH series, telling the story of the alumni and friends of the ETH Zurich, the Swiss Federal Institute of Technology. ETH regularly ranks amongst the top universities in the world with cutting edge research, science, and people. The people who were there, the people who are there, and the people who will be there. Please subscribe to this podcast and join us wherever you listen. And please give us a good rating on Spotify or Apple if you enjoyed today's conversation. I'd like to close by thanking our producers at ETH Circle and Ellie Media and you, our listeners. Thank you for joining us.