

WE ARE ETH – Episode 28

With Michela Puddu, Entrepreneur and Co-Founder of the company Haelixa

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[00:00:00] **Michela Puddu:** At the end of my PhD, I actually saw that my own technology had a potential, so I thought why instead of joining some company or team out there, why don't I actually start something new and and continue developing what I've been working on already and see what comes out.

[00:00:24] **Susan Kish:** In this episode, I'm talking with Micaela Puddu, a multi award winning social entrepreneur and business entrepreneur with many years of experience driving innovation and sustainability and co-founder of the company Haelixa Technology. Michaela, we're so pleased to have you here. This is the We Are ETH podcast, and I am Susan Kish, your host. Michaela, are you joining me from Zurich or where are you today?

[00:00:53] **Michela Puddu:** Yeah, thank you, Susan. Yes, I'm joining from Zurich.

[00:00:56] **Susan Kish:** It sounds like you speak at a lot of events. I saw recordings at TEDx, at the World Economic Forum, all kinds of areas. You enjoy public speaking?

[00:01:06] **Michela Puddu:** I do, actually. I used to not be very comfortable at the very beginning, but then I did it so often that I started to not only feel comfortable, but also to enjoy that actually. Yeah.

[00:01:21] **Susan Kish:** Fantastic. At TEDx, you told this great story of arriving in Zurich with two overstuffed suitcases as part of the origin story. Can you share that story? Because it was just great.

[00:01:35] **Michela Puddu:** Yeah, that, that's the beginnings of how I got to also bring this technology into the fashion textile world. I used to be a bit of a compulsing shopping behavior. And I...

[00:01:47] **Susan Kish:** Actually just say you were, interested in fashion.

[00:01:50] **Michela Puddu:** I was interested in fashion and, yeah, just used to have a lot of clothes and of course, when you move to a new country, you bring them all with you and yeah, there was this colleague from the group I was going to do my research that he picked me up at the station and he was shocked at the sight of those two huge suitcases that he was supposed to carry. After that, I started to dig deeper into some of the issues with fashion, with clothes labeling and and got the idea to bring that technology into that world.

[00:02:27] **Susan Kish:** How did you come up with the core concept behind Haelixa, this idea that DNA can capture data and through that, label it and give you provenance, what is that story?

[00:02:42] **Michela Puddu:** The idea to use DNA as a label in a way is not new. Rather what is new is the way how we have made it work in a way that it's more compatible, let's say with the supply chains and all the conditions. It could be temperature or light exposure, whatever product can be exposed to.

So this is rather the innovation. So how we yeah, turn it into something that can be applied in a real life real world scenario. And it was not just my work, but I've been co-developing this technology in a team including also who became later my co-founder.

[00:03:26] **Susan Kish:** So clothes currently are labeled, but they usually just say something like made in Vitenam or made in China an that's it. Is it possible to get more information about, my turtleneck or your sweater? what kind of information is appropriate?

[00:03:42] **Michela Puddu:** Nowadays it is definitely possible to gain more information and our technology does exactly that. Enable to really access reliable information about product origin, but also tangible proof of claims made, which could be organic or recycle and so on.

[00:04:07] **Susan Kish:** So excuse me. I don't know too much about the fashion industry or about how stuff is made. Is that about the fabric? Is that about where it shipped from? Is that about who made it or What is the information that might be of interest?

[00:04:22] **Michela Puddu:** I think this can all be of interest. So the whole journey of the garment is of interest especially if you want to ensure that some sales sustainability criteria are respected throughout the whole supply chain. But our focus as Haelixa has been mostly tracing materials from the raw stage until then product.

So for instance, cotton, wool. From the source until essentially the retail level to again prove origin or prove some sustainability of production claims.

[00:04:58] **Susan Kish:** How does this work for DNA? I always think of it as those, the helix thing, but is there a website where I can go and I can translate my URL to a DNA?

[00:05:07] **Michela Puddu:** In a way you can but the way we do it, it's a bit different. So we assign a unique DNA to a product or to a specific supplier or to a place of origin, depending what's the scope of the traceability, of course. What's the goal to be achieved. And that unique DNA will throughout the whole journey be associated with that.

So whenever you do a test on the garment or even intermediate products, so yarn fabric, you can always identify that unique DNA and therefore confirm that specific origin or that specific production claim. The test, it's a bit like

[00:05:46] **Susan Kish:** So is DNA a thing?

[00:05:48] **Michela Puddu:** DNA It is really a thing. It's really like your kind of it's like biological DNA that you find in nature. Just is produced in a lab and doesn't have a biological function. It's it's really a unique code that doesn't have any biological meaning let's say. But serve to identify a product and it's really embedded in the product. In the case of cotton...

[00:06:11] **Susan Kish:** you spray it on?

[00:06:12] **Michela Puddu:** Exactly. In the case of cotton, for instance, we spray it on. And that stays throughout the whole throughout the whole life cycle of the product.

[00:06:22] **Susan Kish:** So like it's an aerosol spray and somehow the DNA is embedded into the water?

[00:06:28] **Michela Puddu:** It's a liquid, correct, and it's a liquid and that liquid can be sprayed. Most often that's how this is applied.

[00:06:36] **Susan Kish:** What do you think about when you buy your clothes? Or let me phrase it slightly differently. What should I be thinking about when I buy my clothes?

[00:06:44] **Michela Puddu:** It very much depends on what you care about and what you what are your concern and what's the contribution you want to make to society or the environment. So there are several aspects again, some purchases can prevail the environmental factor or other in the social human labor factor. So that of course depends. Generally, if you want to have the least impact, you buy secondhand. That's the the most effective way to reduce your impact in any possible way. Otherwise, again, depending on what is more dear to you, you should look for information.

And I would say as general rule. The more specific is the information, the more reliable it is. So I would really stay away from very generic claims like sustainable t-shirt or some very generic yeah, labels and look for a company that really give accurate and specific information about their supply chain and typically this company are very well known for that.

I'm not here to advise which brand, but definitely there are a few companies that are very known for their commitment to environment or society and that really make also good effort in showing, in bringing visibility into their operations.

[00:08:10] **Susan Kish:** So can I draw a parallel to how I look at my food? I go to farmer's markets. I try to buy things local as much as I can. I Read labels as carefully as I can to avoid certain chemicals, although that's really challenging. But I gotta say, when I go buy a piece of clothing, they really do not say very much.

[00:08:34] **Michela Puddu:** Yeah it's not easy and sometime maybe the information you can find on the website so research maybe from the companies and buy there. Or, yeah, again, if you have the chance to buy local, but again, you should look also what that local mean, depends where you live and what are the practices in place in the place where you buy them. This is all very valid.

[00:08:58] **Susan Kish:** And should I be skeptical when I read something that says sustainable or organic, or should I feel pretty confident in how those terms are used, or natural, right?

[00:09:07] **Michela Puddu:** No, you should be very careful. The most generic, the least confidence you should have. So again, the more specific it is, the better.

[00:09:17] **Susan Kish:** First of all, how did you decide I want to go from the lab and writing papers to I'm going to make the real thing, right? I want to be an entrepreneur. Cause it's not the normal path for a lot of the PhD candidates at the ETH.

[00:09:30] **Michela Puddu:** I always wanted to do a PhD having then a career in mind that could be in a company. So I always had in mind then to use my knowledge for, I don't know, to assist the product development or anyway bring technology or research into real life use. And with that in mind then at the end of my PhD, I actually saw that my own technology had a potential, so I thought why instead joining some company or team out there, why don't I actually start something new and and continue developing what I've been working on already and see what comes out.

[00:10:20] **Susan Kish:** Because if I understood the history, it sounds like you actually started it and use many of the ETH programs and awards and incubators along the road.

[00:10:31] **Michela Puddu:** Yes, I was very lucky to receive a very prestigious grant from the ETH Foundation at the end of my PhD, which really allowed me to translate

the initial technological platform into marketable products and services and that gave us not just the financial support, but also office space laboratory.

So really they needed infrastructure obviously extremely modern infrastructure, extremely functional to what we needed. And also they needed a ecosystem advisors coach that could help me developing the new business skills. Advice on how to build a successful business plan, business case, and also network of peers, so other startups other startup founders with whom I could exchange any I don't know, challenges, issues, and see how they, if they faced them, how they solved it and so on.

So a really great ecosystem to incubate technology and bring them to the next stage of development and commercialization.

[00:11:44] **Susan Kish:** What was your biggest challenge when you started Haelixa?

[00:11:47] **Michela Puddu:** It was diving a bit into the unknown. So it was exciting to learn many new things at once, but also a bit scary in the sense that I, at times I was a bit fearing that I could make mistakes and therefore yeah, that was a lot of work to really acquire the necessary skills in sales, marketing, I don't know, some legal basics, some accounting and all of that.

[00:12:14] **Susan Kish:** Any particular words of wisdom? Let's say I wasn't me, but I was a PhD student in material science at the ETH and I had a fabulous idea and was just starting to think about leaving and taking the technology and starting a company, what would be three words of advice or three pieces of advice you'd give them?

[00:12:35] **Michela Puddu:** I think the most important thing is really to choose well your co-founder and I would advise to everyone, I think it would have been very tough to be alone throughout the whole journey. It's good to be in two or more to go through really challenging times because there will surely be some challenging times.

And surround yourself of smart people that can help you or trusted mentors that can suggest how to move forward when you're not sure and yeah, professionals that can really bring the expertise that you lack at the beginning. So that's my advice.

[00:13:13] **Susan Kish:** Have a co-founder or two and have a great ecosystem of mentors and coaches. You studied, if I understand, material science in Rome. How did you select the ETH as a place to pursue your doctorate?

[00:13:28] **Michela Puddu:** For me it was...

[00:13:29] **Susan Kish:** Why move to Zurich? Rome is such a great city to be in.

[00:13:34] **Michela Puddu:** Yeah to be fair and honest, I didn't choose Zurich, but I choose ETH. I choose ETH because it's world a well-known institute or university. I

wanted to do my master's thesis in a prestigious university and therefore I selected ETH Zurich.

I remember I applied to get some financial support at the time for the Erasmus scholarship and at the time Erasmus was very popular and I remember. The destinations who are very popular were, I don't know, Spain, Portugal. And I was the only one who actually applied for Zurich.

[00:14:14] **Susan Kish:** Oh, is that right?

[00:14:15] **Michela Puddu:** That's correct. So I actually got it. And I had that support to do my master's thesis. And I decided to stay because I actually really loved it.

[00:14:23] **Susan Kish:** Can you talk to us about advanced technologies for Swiss textiles, your board membership there?

[00:14:28] **Michela Puddu:** Yes, Swiss textiles is a role that I took up in two years ago, essentially 2021. And there, essentially, I am part of the board. So I help setting the strategy, define budgets. And especially my focus is on technology. So giving inputs for what concern the technological developments of the sector. That's why I also chaired the technology commission of the association.

What is becoming more relevant is rather the aspect of innovation, so not standard textile, not standard apparel, but rather more technical textile or advanced material using textile or advanced technology.

[00:15:13] **Susan Kish:** So high tech fabrics and high-tech textiles?

[00:15:17] **Michela Puddu:** Could be, technical textile can also be. I don't know, workwear or yes any any other application beyond the more traditional apparel.

[00:15:28] **Susan Kish:** The more traditional sectors of high fashion or fast fashion or whatever it's called.

[00:15:33] **Michela Puddu:** And if you look also at the sector in Switzerland, the new company that are emerging in the field are maybe start, of course there are companies that have a long tradition in Switzerland and that still do manufacturing and they still have very good good reputation and they're still leader in the market, but the new, let's say company or initiatives they are forming are more around really innovative products or startups or maybe you're familiar with the On running shoes and...

[00:16:09] **Susan Kish:** Sure. ETH spin out, right?

[00:16:11] **Michela Puddu:** So this is all yeah, they are very innovative for some aspects and therefore allow Switzerland to remain competitive and leader in this sense.

[00:16:23] **Susan Kish:** Understood. One of the other awards that I heard you understood is the European Commission Women Rising Innovator Award.

[00:16:32] **Michela Puddu:** Yes.

[00:16:35] **Susan Kish:** Which sort of brings the topic of your role as a woman founder, a woman researcher, a woman leader in this area. How do you view that or do you view that as a distinction that you want to really focus on?

[00:16:52] **Michela Puddu:** I'm very grateful that I received that price. I was awarded that price. It gave a lot of visibility to my work. And initiative like that should be more common, let's say, to really bring to light. Otherwise in some cases hidden women figures.

But I wouldn't say that I focus on that. I just been focusing on my work and I didn't really care that I was the only or one of the few women at the table. I was just focusing on my work. So I didn't particularly use it at my advantage nor I have seen big disadvantage likely in my career.

[00:17:41] **Susan Kish:** So I also heard that we should congratulate you and you recently had a child. Can you tell us a boy, a girl, how many months? Does it sleep through the night? The most important questions.

[00:17:53] **Michela Puddu:** It's a boy and...

[00:17:55] **Susan Kish:** Congratulations!

[00:17:56] **Michela Puddu:** Thank you. And it doesn't sleep too much, but also not a little I think overall we are very lucky and is good as it is. We're very excited.

[00:18:06] **Susan Kish:** What's his name?

[00:18:06] **Michela Puddu:** Leonardo.

[00:18:07] **Susan Kish:** Leonardo. Fantastic. I did my thesis back in college on Da Vinci. So I'm a big fan of that name.

[00:18:14] **Michela Puddu:** Yeah, I wanted to bring an important Italian name into the equation, as he has a Swiss surname, so I thought having both roots in a way in the name would be fun.

[00:18:28] **Susan Kish:** Has that changed your view on life at all?

[00:18:31] **Michela Puddu:** Yeah, for sure, I think what everyone said to me before, that, priorities will change. I already see that. It comes first. Family comes first.

[00:18:42] **Susan Kish:** Michela, thank you so much. I'm going to ask you some closing questions, if that's okay, that we often ask our guests. But thank you so much in advance for your time and your honesty. Really appreciate it. So right now, in the 15 minutes that you might have to yourself in a normal day, all right, maybe five minutes.

What books or podcasts are you reading or listening to?

[00:19:08] **Michela Puddu:** I, unfortunately, since the birth of my child, I didn't manage to read a book.

[00:19:14] **Susan Kish:** Totally. Let me just say, I totally get that.

[00:19:18] **Michela Puddu:** So I bought a book just before giving birth, thinking that maternity leave would be a great time to read. I was very naive. I was very naive and that didn't happen. I'm not reading much at the moment, but I like novels, so I read a lot of novels and if there is a strong woman figure in the story it's better, I find it inspiring and fascinating.

[00:19:44] **Susan Kish:** Would be a book or an author that you would recommend? I'm always looking for new stuff to read.

[00:19:49] **Michela Puddu:** So I recently read CIRCE by Madeline Miller and I...

[00:19:55] **Susan Kish:** C I R C E, right?

[00:19:57] **Michela Puddu:** Yeah. The goddess or the witch, some say in the Odysseus story.

[00:20:03] **Susan Kish:** That was a great book.

[00:20:04] **Michela Puddu:** Otherwise, I read also the novels inspired by the Florio family. I mention it in now because the series just came out on Disneyplus so maybe most people are familiar with that, but I found actually the book extremely good as well.

[00:20:21] **Susan Kish:** So what is the name of the actual book or the author?

[00:20:24] **Michela Puddu:** The Lions of Sicily, I believe. It's the Florio family, is this family from Calabria region in Italy that built a business empire in Sicily.

[00:20:36] **Susan Kish:** So although you mentioned that you didn't come to the ETH for Zurich, you came for the University. You've obviously chosen to stay here for a while. So what is your favorite place in Zurich?

[00:20:48] **Michela Puddu:** I love to be close to the water, so I was born in Rome close to the seaside, so that's what I miss, so anything that resemble that is cool. So lake...

[00:20:59] **Susan Kish:** So which schwimmbads do you like?

[00:21:01] **Michela Puddu:** Lake, river exactly "Badis" are definitely the place where you find me in summer. But I actually love also the botanical garden in general.

In every city I visit, I try to go to have a look at the botanical garden there. And yeah, the one in Zurich is really beautiful.

[00:21:19] **Susan Kish:** So when you were growing up in Rome and you were a little girl, what did you want to be when you grew up?

[00:21:24] **Michela Puddu:** I didn't have very clear ideas, I have to say. I, this I actually never, I never knew what was next. It just came, unfolded. Very naturally at the right time, but at some point I was very motivated to become a doctor, medical doctor. And I'm glad I did not do that because I get very easy, I don't know, scared or anyway I think I would have brought home a lot of patient stories and I wouldn't have coped with that very easily. So I'm glad I didn't do that.

[00:22:00] **Susan Kish:** Very cool. Micaela, thank you. That was a great conversation. Really appreciate your time.

[00:22:06] **Michela Puddu:** Thank you. Thank you so much.

[00:22:09] **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 here in Zurich. 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 for the people who will be there. Please take a moment and subscribe to this podcast and join us on whatever platform you listen. Give us a good rating on Spotify or Apple, if you enjoyed today's conversation. And I'd like to close by thanking our producers at ETH Circle and Ellie Media. And most of all to thank you on listeners for joining us.