WE ARE ETH – Episode 38

With Etienne Jeoffroy, entrepreneur, Co-Founder and CEO of the ETH spin-off FENX

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[00:00:00] **Etienne Jeoffroy: Yes, it's always a pleasure for me to talk about my grandmother, she's still my role model and she's been a farmer all her life and she's still somehow, she showed me really how to respect materials, if I can say like that and also, how the true sustainability is to have it last for very long.**

[00:00:23] **Susan Kish:** In this episode, I'm talking with Etienne Jeoffroy, ETH alumni, co founder and CEO of ETH spin off, FENX. I'm Susan Kish, your host at the We Are ETH podcast. Etienne, good morning and welcome, hi, actually, it's your afternoon and my morning. Where are you calling us?

[00:00:51] **Etienne Jeoffroy:** I'm calling you from the middle of Switzerland and the Canton of Argovia and in the beautiful city of Turkey.

[00:00:59] **Susan Kish:** And is this your production office? Is this where you're, you're calling from? Is this your

[00:01:04] **Etienne Jeoffroy:** It´s all in one. So you may hear a bit of noise from the production hall, but it's a bit where we are scaling the, our technology.

[00:01:13] **Susan Kish:** Fantastic. So I'm going to guess that you are actually a French citizen and you grew up in France. Where, what part of France did you grow up in? Where did, and how did you come to transplant to Switzerland?

[00:01:26] **Etienne Jeoffroy:** I come from Burgundy, in the middle of France as well, not so far away from Switzerland.

[00:01:32] **Susan Kish:** Where in Burgundy? Where?

[00:01:33] **Etienne Jeoffroy:** Dijon.

[00:01:34] **Susan Kish:** Oh man. One of my favorite towns.

[00:01:36] **Etienne Jeoffroy:** Yes, it's famous for some food, I would say, but it's also perfectly located for me as I, I studied in north of France, I then went to Spain, Sweden, and eventually landed in Switzerland. And so it's perfect because it's not so far away from the family, but it's also, I would say far enough that I can enjoy a new culture.

[00:02:00] **Susan Kish:** Fantastic. Now in all the countries you listed Spain and Sweden and France, I guess, did you go to those places to study, to start companies, to what, what caused you to travel so much?

[00:02:10] **Etienne Jeoffroy:** So yes, it was during my studies, I went to what we call a European engineering school in the north of France. And that kind of also invite you to travel three semesters during your studies, uh, in different partner universities. And that's how I ended up in the north of Sweden, near the polar circle, and then in the middle of Spain and in Valencia.

[00:02:34] **Susan Kish:** Fantastic. Was the ETH the last stop on that, or how did you, did your undergraduate and your master's in this program you've described, and then what brought you to the ETH?

[00:02:45] **Etienne Jeoffroy:** At the end of my Master, I went to do an internship in Winterthur, not so far away from Zurich, at the company Sulzer.

[00:02:53] **Susan Kish:** Right.

[00:02:54] **Etienne Jeoffroy:** And i had the chance to get a position offer at the end, I worked there for a week, and I realized that I was very young was 23 years old and I felt really not ready to go to the real world.

And I must say I, I met very important people that show me what the ETH was doing and I had the, I would say, the privilege to, to start a PhD at ETH and with the material Institute of EMBA.

[00:03:22] **Susan Kish:** This the lab of Professor André Studart?

[00:03:25] **Etienne Jeoffroy:** Yes, I would say, uh, André Studart plays an important role in my career as a mentor and he's a, he also gave me a lot of freedom during

my PhD to develop a little bit different types of innovation so at some point I had, yeah, nine projects and it was really, the possibility.

[00:03:43] **Susan Kish:** At the same time, you had nine projects?

[00:03:45] **Etienne Jeoffroy:** But it's somewhere a bit in standby sometimes.

[00:03:49] **Susan Kish:** You weren't distracted?

[00:03:49] **Etienne Jeoffroy:** Exactly and I would say it was really easy to connect with different types of innovation and people. Material science has the advantage that you meet with a lot of different disciplinary.

So we had physicists in the same corridor, biologists, food scientists and so I could develop many types of different ideas.

[00:04:09] **Susan Kish:** So out of these nine projects, what were your most interesting projects and how did you pick the one you actually ended up writing your dissertation on?

[00:04:17] **Etienne Jeoffroy:** It was very different projects, the first one was, and actually the initial one was related to asphalt, concrete, asphalt concrete materials, and to make it self healing and it was fascinating on the way we could use relatively simple ways to extend the lifetime of asphalt concrete pieces and that was the origin.

[00:04:39] **Susan Kish:** Just to make sure I get it: asphalt is the stuff they use on roads, right? So that when you're talking holes, you're talking about the very beginning of what I have outside, which are the potholes that come up in winter. Okay. That sounds like a major problem, good.

[00:04:55] **Etienne Jeoffroy:** Yes, we developed a way to close this micro cracks before they become visible and that could eventually extend the lifetime of a pavement. And this technology, we, we brought it, I would say to first innovation definitely there is a potential to bring it to the market, but it didn't feel like the right moment. And it's also a material that face a lot of, uh, political regulation and, and sometimes it's very difficult to, to bring that easily to the world.

[00:05:24] **Susan Kish:** Good. So that was your first and that sounds like a fascinating project, but you're right there were a few barriers to getting that.

[00:05:30] **Etienne Jeoffroy:** And so here I was really having the right level of expertise next to me and I would say along my young career so far, I was very lucky to be with the right people. And so I had the civil engineers at the that was bringing the, I would say the problems of the real world, and then the approach more from the fundamentals coming from the laboratory at ETH, where here there was a perfect match of skill sets and for me, it was like gathering the information together and try to, to, to bring it to the real world.

[00:06:03] **Susan Kish:** Let's move to Fenix. How did that one come together? Cause it sounds like you started that with your professors and a bunch of people from your labs and so that sounds like another one of maybe not that nine projects, but (-)

[00:06:16] **Etienne Jeoffroy:** So, yes, it was one of those projects and I would say it's, uh, it comes from a historical technology from the lab that was a way you could make, uh, ceramic foams, so foams with some specific, uh, and eventually you would put that in an oven at high temperature and then you could get, uh, uh, ceramic, very, very light.

And that was very interesting for some specific applications and during my studies, we were thinking, how could we make that as an insulation material using local materials? And in that particular case, we started to work with ashes from the coal industry and actually, it started with our professor, André Studart, who comes from Brazil and show us a picture on Google map of a big coal plants with a mountain of ashes that were eventually contaminating the ambient air.

And so we started with that material and make a foam out of it with a lot of air inside without using high energy processes and that's how we make a mineral foam that is very light and it would insulate very well. And so that was the start of this technology behind Fenix.

[00:07:27] **Susan Kish:** And what gave you the conviction that this was more than a lab project and a bench (-)?

[00:07:31] **Etienne Jeoffroy:** So here I would say it's, it was again, luck. And also I was able to talk with a couple of customers, possible customers and at that scale, I was the only one believing they could be my customers one day, but I was asking them what they need without telling them what we are making. And that was very interesting to see that they all say the same: they need, uh, uh, materials that are sustainable, uh, non flammable and cheap. And that was exactly the, the matching, uh, points that we wanted to bring with this product. We are the techie guys, I would say my, my co founders and myself and we want to bring something that can have impact on the large scale.

So that means we need to understand how this construction world works and so here through our partners, through our investors, we had the opportunity to really understand how it works and also why it may be difficult to bring an innovation in the construction market.

[00:08:36] **Susan Kish:** So what the challenges are to giving it to scale?

[00:08:39] **Etienne Jeoffroy:** I think that's an industry that is that has a lot of responsibilities and there's so a footprint you.

[00:08:46] **Susan Kish:** A huge footprint.

[00:08:47] **Etienne Jeoffroy:** I think it's a third of the carbon spring come from buildings. And so here it's a very difficult approach because you need to build something for many years with materials that usually you need a lot of scale to produce, and so we talk about big investments. So it's very difficult to change the status quo when suddenly a lot of regulations come and ask you, can you stop using this historical material you've been using for so many years?

So, it's a very difficult approach to change because you deal with a very complex value chain between the producers until the installers, the architects, and eventually the users of the buildings and so, you need to have everyone involved in the process of innovation and that is difficult and that takes a lot of time.

[00:09:34] **Susan Kish:** So let's just talk about the potential impact of this. If a third of the world's carbon footprint comes from buildings, how much of that can you actually change by changing the insulation materials?

[00:09:48] **Etienne Jeoffroy:** I think, first of all, it's important to say that within this one third, a lot of it is used for heating and cooling the buildings and then another important part comes from the material themselves and here, usually, the use of cement, the use of aluminum have a strong footprint on the construction but then within the world of insulation, you have a very strong responsibility to renovate a lot of the buildings today that's that are consuming too much energy and so here we need a lot more insulation to match with the oldest this new constraints that the countries have. And so here insulation plays a major role in reducing the energy consumption of buildings during the lifetime. Then, uh, I would say for us, the whole philosophy was really to make materials that have during their whole lifetime, uh, a philosophy of having a very low footprint, meaning using local materials, have them in service for very long time, and eventually to have them very easy to recycle.

And I insist on the easy part because recycling materials today in the construction industry is very difficult. Because you have a lot of materials from different families that can be glued together or put together and they are very difficult to disassemble and eventually to valorize. And so our approach is to think the same family of measures together.

So we work with minerals, so we've stone like products and we want to think of building elements that are made from minerals as well and that can be all recycled together. And so the idea is really that with an easy process to recycle, we could increase this number that shocked us at the beginning when we heard that 1. 5 percent of installation actually recycle in Switzerland.

[00:11:37] **Susan Kish:** Wow. That is a low number. Now that's just Switzerland, is that exceptionally low or is that sort of globally about right?

[00:11:45] **Etienne Jeoffroy:** It's exceptionally high, if I may, actually.

[00:11:48] **Susan Kish:** Oh come on. Really?

[00:11:50] **Etienne Jeoffroy:** Today we start having processes to recycle the major materials we know with the concrete and so on, but a lot of spilling elements are a mix of different materials, and here this is very tedious to, to separate them.

[00:12:02] **Susan Kish:** Wow. Okay. So it sounds like you found a market, a problem that needs to be solved, a market that's large and growing and a solution that ticks the boxes they articulated in some additional ones. How do you get this to scale?

[00:12:18] **Etienne Jeoffroy:** Very easy. No. So it's very difficult because we talk about a product that is a commodity product and that means a massive amount of scale to, to be meaningful from the economics. And so the point is we started the company in our four year and a half ago, and we started with a phone that was half size of that.

And we started then making the first panel, and now we set up for the last two years a small prototype line to fabricate installation panels that we test, that we certify, and that we put in some buildings. And so that's why we did for the last years, and that was necessary to show that it simply works, and that basically what we were dreaming of as performance, we could reach that. Now, the point is for the last year, you show the performance, but you also need to show the economics and that's what we've been doing. And so now we in the process of scaling up with a first full size factory together with our partners.

[00:13:20] **Susan Kish:** Let´s go back to the very beginning. One of the stories that you talked about on your path was the influence of your grandmother on this choice around material science and I don't know if that was also in terms of your choice about being an engineer, but can you tell us that story?

[00:13:36] **Etienne Jeoffroy:** Yes, it's always a pleasure for me to talk about my grandmother. She's still my role model and she's been a farmer all her life, and she showed me a video when she was, uh, 16 years old of a documentary regarding the risk and the danger of living in a farm. And you could see that fire was actually a very important issue in the farm.

And so they were showing how children should behave in presence of a fire or in presence of risk and everything was related to the materials at the end of the day. And what she was always telling me is all the tricks that she used to basically manage the whole thing, she was the oldest of the 12 children, so she had a lot of work and ideas to, to use.

[00:14:23] **Susan Kish:** So that got you on the path of looking at the impact of your choice of materials can have in terms of things like flammability and danger and not just how, and as well as aesthetics and cost and sustainability and all those (-)

[00:14:40] **Etienne Jeoffroy:** Yes. She showed me really how to respect materials, if I can say like that. And also how the true sustainability is to have it last for very long.

[00:14:52] **Susan Kish:** Let's talk about the ETH. It sounds like your years at ETH were incredibly fertile in terms of ideas and connections and seeing where things are going. How did ETH influence your path?

[00:15:06] **Etienne Jeoffroy:** I think that was for me the first time where I had full freedom to be uh, can I say to be crazy or to think far away and, and that is not only a thanks to, to my, uh, professor André Studart, but also to the people in the lab, because there was a very strong, uh, drive towards innovation and it was very healthy.

And that is, that was very interesting because it was easy to collaborate with all the people. And, and again, the mix of skills that you can find in material science is very interesting to get different horizons in your thinking path.

[00:15:46] **Susan Kish:** There was a story about you doing this where you took a solution in cancer treatment and applied it to another area. Is that the kind of thing you were talking about where you take something in X and you apply it to Y?

[00:16:02] **Etienne Jeoffroy:** Yeah, it, it, it looks cool said like that, yes. Uh, and, and,

[00:16:06] **Susan Kish:** It does look cool. Yeah.

[00:16:08] **Etienne Jeoffroy:** And that was actually the idea of using magnetic particles for the asphalt. And so the whole point is that we use today for a technology that is called magnetic hypothermia, uh, nanoparticles that would be, uh, um, , at this very selected region of your body and where you could apply a magnetic field to slightly increase the temperature and eventually kill cancerous, uh, uh, uh, cells.

And so that was a similar principle.

[00:16:36] **Susan Kish:** Do they actually do that? (Etienne: Yes) Is that applied? Okay.

[00:16:40] **Etienne Jeoffroy:** Don't know today, but at my time, there were at least a test on, on human bodies.

[00:16:45] **Susan Kish:** So Etienne, what is your affiliation with ETH now? How do you work with the university?

[00:16:50] **Etienne Jeoffroy:** So I would say we have a couple of ETH kids in the company, so that's, I would say we are deeply rooted from ETH and we kept a very strong relationship with them. So first of all, the company exists strongly thanks to the contribution of ETH and with the possible programs that we have, we had the opportunity to be part of, and then today we also have a very strong link with the laboratory where we're from, where we have the opportunities to, to discuss how we could develop the material.

And what I like is that the laboratory also develop itself in thinking till the end on how such an innovation could be used on the real world. So it's a synergy that we saw for each other and we are very happy to have this contact very nearby from us.

[00:17:37] **Susan Kish:** Very cool. Etienne, thank you. That's a fascinating journey. And I look forward to seeing and tracking the history of the future, I should say, the future of Fenx and where it goes to.

[00:17:49] **Etienne Jeoffroy:** Thank you.

[00:17:50] **Susan Kish:** I'm going to close with asking some of the standard questions that we ask our guests. And the first one is really when you were a little boy, what did you want to be when you grow up?

[00:18:01] **Etienne Jeoffroy:** I wanted to be a vet in the farms and, and yeah, I think I did a very short internship with a vet who told me that if I want to enjoy family time and friend time, I should not be a vet. That is the alternative.

[00:18:18] **Susan Kish:** Got it because if a cow's giving birth, they really don't care that you're in the middle of a Sunday dinner.

[00:18:23] **Etienne Jeoffroy:** Exactly.

[00:18:24] **Susan Kish:** Yout mentioned the word innovation many times. What are you curious about these days? What are you learning about what's keeping you

[00:18:32] **Etienne Jeoffroy:** So, I think the step of being in a startup brings you a lot of different facets of I call the real world life and so here you are confronted with completely different topics every day and I never finished to satisfy the curiosity. So on one day you discuss about the product development, the day after finance and the day after human resources, and it calls for very different type of skillsets. And to be able to learn that with those who know better, that is extremely interesting for me to evolve.

[00:19:04] **Susan Kish:** So it sounds like you're getting a real life mini MBA in terms of running your company. What books are you reading or podcasts are you listening to?

[00:19:13] **Etienne Jeoffroy:** Thank you because books, I'm not a, a very good reader. Uh, uh, uh, but I must say I, I like a lot, uh, biographies and a lot biographies of athletes and so that's, that's very inspiring for me and very, I could, it's very interesting that everyone can relate to some steps that an athlete can go through. And so I read a lot of biographies of basketball players and the last one was the one of Kobe Bryant.

[00:19:40] **Susan Kish:** Fantastic. And how about podcasts? Any that you listen to?

[00:19:45] **Etienne Jeoffroy:** So here, I must say, it's a lot of French podcasts, and it's very different topics. One is called Nota Bene, and it's a different way to see history, and that's what I listen to fall asleep.

[00:19:57] **Susan Kish:** And then a final question, when you're in Zurich, which sounds like you go to Zurich from time to time, what is your favorite place to go at ETH or in the town?

[00:20:05] **Etienne Jeoffroy:** So, it's very much basketball related, so it's all the spots where you can play basketball in Zurich. And one is at ETH, it's the Polyterrasse, and others are called the Beckeranlage or Rössli, and these are the nice spots. But otherwise near the lake is always a nice spot, and I like the Mittenke because it has a very nice view on the whole lake and the city of Zurich.

[00:20:28] **Susan Kish:** You're setting me up to ask this question. Do you play basketball?

[00:20:31] **Etienne Jeoffroy:** Yes. A lot.

[00:20:34] **Susan Kish:** A lot? Do you have a basketball court outside at your building?

[00:20:40] **Etienne Jeoffroy:** I had, and I, I, I must say, I look when I look for new apartments where the next basketball court is.

[00:20:48] **Susan Kish:** And do you have a ring or whatever you call it at your offices at your production plant so you can play in the (-)

[00:20:54] **Etienne Jeoffroy:** There is, yes.

[00:20:56] **Susan Kish:** I figured as much anyway, Etienne, thank you so much. Really appreciate your time.

[00:21:02] **Etienne Jeoffroy:** Thank you.

[00:21:03] **Susan Kish:** I'm Susan Kish, host of the We Are ETH series, telling the stories of the alumni and friends of the ETH Zurich, the Swiss Federal Institute of Technology.

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I'd like to close by thanking our producers at ETH Alumni and Ellie Media and to thank you, our listeners, for joining us today.

Links to topics mentioned in the episode:

Books:

- 'The Mamba Mentality' von 'Kobe Bryant'
- Show Dog: https://en.wikipedia.org/wiki/Shoe_Dog

Podcasts:

- Nota Bene