[00:00:02] Birgitt Boschitsch: We didn't have a product yet. We had some potential customers. But November 2019 was when the paper on this technology was about to publish. I remember explicitly thinking, okay, this is an opportunity. A lot of times papers on this topic get a lot of media and publicity. We don't want to waste that. And so I was like, we're making a product and the paper is about toilets. We're going to make a toilet production.

[00:00:28] Ryan Newman: This is Dare to Disrupt, a podcast about Penn State alumni who are innovators, entrepreneurs and leaders and the stories behind their success. I'm your host Ryan Newman and on the show today is Birgit Basic. Birgit is the co founder and CEO of Spotless Materials, an advanced materials company and Penn State sponsor spinoff commercializing highly repellent anti fouling coatings. Under Beardit's leadership, the company has secured over 4.8 million in funding and sold commercial products in all 50 US states and over 28 countries worldwide. Birgit holds 26 issued and pending patents and received her BSc in Mechanical and aerospace engineering from Princeton University and her PhD in Mechanical Engineering from Penn State.

Birkit, I'd like to welcome you to the Dare to Disrupt podcast. This is a first for us. You were our first guest whose startup was inspired by nature and we're excited to talk to you about your story.

[00:01:33] Birgitt Boschitsch: I'm so excited to be here. Thanks so much.

[00:01:35] Ryan Newman: Absolutely. So I'd like to start Birgit as we normally do, which is at the beginning. Can you take our listeners back to those very early days when you were growing up, in your early childhood and some of your early formative experiences, please?

[00:01:47] Birgitt Boschitsch: I've been asked this question many times. I try to figure out when it starts, and I think it goes back to when I was a kid. I didn't necessarily think I wanted to start a company. I didn't even know I necessarily wanted to go into the science or engineering. But the really core inspiration for me all along was to do something that helps people. I was really passionate about that vague but intense goal of making a difference. And I think that as I got older and older, that looked different in different ways. But when I got to college, that's when I started to really take a strong interest in science and engineering. I was a mechanical and aerospace engineer. I went to Princeton and during that time I got to do research. I really started to morph that goal of helping people. And two, I want to use my technical skills, my technical interests to make something or build something that could help people.

[00:02:42] Ryan Newman: So let's go back to those early years of when you're. When you're young and growing up. What kind of student were you? Did you have any siblings? What were your parental influences when you were just focused. Focused on growing up before you even went to undergraduate school for college?

[00:02:55] Birgitt Boschitsch: So I was homeschooled. My mom homeschooled me until I was in third grade. My mom really emphasized kind of creativity, and if I was interested in something, we could spend more time on that. And she loves to tell the story of like, building little rockets in my backyard. And then I ended up wanting to spend the whole afternoon doing it. She's like, go for it. So that was my really young years. My dad, he was also a mechanical engineer. That was his background. So I got to. I'm sure I learned a lot just from him and hearing him talk about his work and explain things to me. So that was definitely pervasive, I think, throughout my whole childhood. I was definitely someone who had lots of questions about how things worked, why things are the way they are, asking why, why, why, how, how, how. So I think that's kind of like the personality that I had as a kid. I started going to public school in third grade and actually really loved it. I had a small class and I liked kind of all the subjects. I loved French, I loved math and science. And, you know, I was pretty serious about getting my homework done and I. I liked

doing my homework. I got moved to a more advanced math class and I was like, oh, wow, like I can do that. I didn't think that I was one of the kids that could be in the advanced class. It was encouraging. And then around that same time, I had also been taking horseback riding lessons. I started to volunteer to also get free rides because it's expensive and we didn't spend a lot of money on anything besides the lessons. So I started volunte mucking out stalls to. To get some free rides. So that was kind of like a move to like, trying more things, maybe expanding opportunities a little bit. And seeing that I could take a little bit into my own hands and just taking advantage of the opportunities around. And then in high school, science classes got very, like, specialized. So instead of like a general science class, I was taking biology and then I was taking chemistry and then physics. It really opened my eyes. I started really loving that class. It was really something that I enjoyed, and I felt like I thrived in and excelled in those science classes.

[00:04:59] Ryan Newman: So you're doing really well in science. You're in advanced math, and the Decision of where to go to college has to come about now. We pride ourselves on having all of our interviews with Penn State alumni. And that can become in many forms, in your case, it came in an advanced degree as opposed to an undergraduate degree. So normally the question is, how did you decide to go to Penn State? For you, the question is, how did you decide where to go to college and where did you ultimately end up?

[00:05:22] Birgitt Boschitsch: I have this memory of like wanting to stay within like an eight hour radius of home. And my home was New Jersey for me because I love my family and I didn't want to have to like get on a flight to come back for the holidays. So that was a factor. I wanted to go somewhere that would challenge me skill wise and like lay a good foundation for whatever was next. I didn't know what was next at that time, whether it be a job or grad school. So I applied to, gosh, it must have been like 10 different colleges. I think got into several and Princeton was my top choice and I, I got in. I'm very grateful for that. And it was also conveniently like 15, 20 minutes away from home too. So that was like a win all around.

[00:06:04] Ryan Newman: Fantastic. Congratulations on getting into Princeton.

[00:06:07] Birgitt Boschitsch: Thank you.

[00:06:07] Ryan Newman: And what were some of those early formative experiences like for you once you arrived on Princeton's beautiful campus?

[00:06:12] Birgitt Boschitsch: First semester, it was a real transition. I was definitely studious, very responsible person. But I struggled. I really struggled. I was surrounded by, everyone around me, was really smart, really capable, that, you know, didn't bother me too much. But I was, I was like, oh my goodness, like, I have to work really hard to do well. And I think the very first exam that I took, I got like a really bad score. But that was average apparently. So it was a really tough class and I didn't know what to make of that. I was like, is a 40% normal. And like in that class it was so it was definitely an adjustment. Oh, and the funny thing was some of my peers were like, they're in college and they're like going to parties. I'm like, on party nights, I'm like studying really hard to get my like my problem sets done. Everyone's like, oh yeah, I'm doing so badly. They're like, I gotta stop partying. And I'm like, I'm not even partying. So I was like, I should be doing better anyway. It was, it was tough and it was adjustment, but I think by the next year I kind of figured out like a system.

[00:07:10] Ryan Newman: In all seriousness, you're you're obviously very bright and capable. You then get to this environment where everyone's leveled up. That must have been really hard as sort of always being sort of the smart one in the class. And now all of a sudden you're surrounded by people that make you feel, feel like maybe you're not as capable or bright. You

know, we're sitting here now successfully talking about this business that you've launched that obviously required a tremendous amount of smarts. So you regained your footing. But in those moments where you sort of came from this environment where you were so bright and now you're in an environment where everyone around you feels smarter, how'd you find your footing from just a self esteem standpoint?

[00:07:45] Birgitt Boschitsch: Yeah, I really love that question because that was something I remember working through. I think in high school, I never really like thought super. I didn't think little of myself, but I didn't have this idea that I was amazing. And I may be kind of surprised. I was like, oh my goodness, like, I guess I'm doing all right. But very soon, you know, I'm surrounded by these people, like you said, that are extremely capable. And I think a big part of all of that was understanding how important humility is. It's like, I'm not here to be the best. My goal is not to be number one. My goal is to like, learn as much as I can, gain deep understanding of as many things as I can, and how amazing that I can learn from my peers and learning how to ask questions, but getting comfortable asking questions and like not feeling ashamed or dumb for asking questions. And a really key takeaway I had and I've been like super passionate about this. So like, if anyone ever asked me questions, I'm like, you do not feel it, like ask me anything. Like, it's never a dumb question.

[00:08:46] Ryan Newman: So as you continue on through your Princeton experience and it comes time to think about graduation and what you want to do after school, was the decision to go to graduate school kind of a no brainer for you, or was this something where you really kind of struggled with what to do next?

[00:08:59] Birgitt Boschitsch: I'd say it became a no brainer for me over my junior and senior year. And a big part of that was because I worked in a lab on campus. I started doing research in bio inspired fluid mechanics. And so I had done a bunch of research on bio inspired propulsion, fish, swimming, things like that. And I really loved it. I felt like that was where I thrived. I struggled a lot with timed tests. I was always like kind of anxious not like, oh, gosh, I hope I don't fail, because like, so much of your grade, like, relies on the test. But when I started doing research in this lab, I learned that a skill I have is like beating my head against the wall until I understand something or until, like, I kind of get an answer. So that grit was there. So finally, when senior year comes around or making decisions, I was like, absolutely. I love research. I love this setting. I want to go to grad school.

[00:09:48] Ryan Newman: And so the selection on where you go to grad school obviously is a whole nother choice. Can you take us through the INS to that selection?

[00:09:54] Birgitt Boschitsch: So I was kind of very focused this time around on research topics that I was passionate about. Up until that point, most of my background research wise, had been in fluids, so in bio inspired fluids. So I was kind of looking at research labs that were doing some of that.

[00:10:11] Ryan Newman: So you, you enroll in this program and what was the name of the actual program that you enrolled in?

[00:10:16] Birgitt Boschitsch: Yeah, so it was in the mechanical and nuclear engineering, the PhD program.

[00:10:20] Ryan Newman: So you enroll in this PhD program and you have an interest in liquid repellents. How did that first take hold and how did the professor relationship start to form for you?

[00:10:30] Birgitt Boschitsch: So this is hilarious. So I think it was my first visit. I had a list of professors that I wanted to meet. My PI who's now my co founder, Tak Sang Wong, he was on my list. And I, at the time, I didn't realize, but my advisor from Princeton had done some collaborating with taxing on some naval projects, so. So they knew each other. But he scheduled a meeting with me. But I went to his office and he was studying materials at the time. And I walked in and I was like. Before he even started talking to me, I was like, I just want to let you know I'm interested in fluids, not materials. So he's like, okay. He was like, well, let me just show you what I do research wise anyway, and then. And then I'll let you go. And I was like, okay. And then he showed me his presentation and I was like, oh my gosh, this is the coolest thing ever. So anyway, I remember that moment because I was like, I'm not interested in materials. It's not like a topic. I'm interested. And of course I ended up working with him and went a materials direction. So he was very compelling and great at storytelling and he explained things so well that I felt like suddenly like that was what I wanted to study.

[00:11:38] Ryan Newman: So you start off on the study and how did the actual idea For a business and the technology behind the business come about. Take us through that story.

[00:11:46] Birgitt Boschitsch: So the first couple of years at Penn State and in Taxing's research lab, I had been working on a number of different projects, all nature inspired engineering related. I had done some work on what we called slippery rough surfaces with one of the postdocs in our lab that kind of like really got my feet wet into what was a relatively new field, a very new field for me. I was working on taxing was like, wouldn't it be interesting if you could keep dust off a bookshelf but you could still reach in and grab the books? And I was like, yeah, so like a filter that instead of letting the small particles go through and the large ones are trapped, I'd be making a filter that lets the large ones through and the small ones are trapped. And so this idea of like a liquid membrane came to life. So that's what I spent a lot of my dissertation work on. But at the same time, I'd been working on these different types of nature inspired materials and interfacial designs. So one of my colleagues had been working on what we now call the liquid entrenched smooth surface. And this is what we're commercializing today. What we then spun out into a startup. He had been working on that Taxing's lab, or Taxing specifically, had been approached by another university and an organization that was funded by the Gates foundation for the Reinvent the Toilet challenge. That whole challenge was focused on creating self contained waste management systems for regions that are experiencing a sanitation crisis. And there's a whole set of design thoughts that go into creating a self contained bathroom system. But they had one challenge that they presented to Taksang and this was, okay, we have to move solid waste around in regions that are experiencing water scarcity. How do we flush poop without water? And so Taksang, being well known for his slippery surface research, had to work with them and Seth to materials that already existed on the market and looked at some of his groundbreaking technology that he developed several years prior called slips. And we found that while those services are very effective at repelling liquids, they're not very effective at repelling sticky substances like poop. So Tak Sing started a new project in his lab to basically create the most poop repellent coating that he could make in the lab. It was, it was really cool to see because it was a really important topic. And it was also kind of funny for people that are immature like me, that like laugh at these things. But yeah, this Was this project ended up being spearheaded by Taxing, who was the professor and my lab mate, Jing Wong. And they spent a lot of time on this. And I had worked on many similar technologies and had expressed pretty strong interest in understanding what happens to technology after it's like put in a paper. I wanted to know when does it actually get into the real world? That was like the start of the technology. And then there was a whole bunch of like questions I was asking myself about commercialization and making a difference in the world, like I talked about before, that kind of went into the decision to spin out a company.

[00:14:39] Ryan Newman: So Birga, can you share with us this evolution of going from having a

technology that's in the lab to actually then the commercialization? And I think the question everybody always wants to know is, who owns the technology? Is it owned by the university? Is it owned by the entrepreneur? Is it owned by the professor? Take us through that.

[00:14:55] Birgitt Boschitsch: There are a few factors I think that went into the pathway of bringing this technology from the lab and turning it into a company. Some of it was my own personal interest. Some of it was just sheer opportunity at the time. And then there are other kind of more proactive things that we could do based on those two, like seeking funding to explore next steps. So at that time I was in a position where Taxing had invited me to kind of have an eye into different patent discussions that he was having and even some negotiations with industrial partners. And this is very eye opening for me because I could see how for this technology, the university owned the technology because it was developed by a grad student and professor. But I could see some of these negotiations and some of the steps there. And I was like, you know, texting, like, why don't we just start a company, like, we know the technology really well. Why do the inventors get. You should get more like, you did all this work, shouldn't you get like more like a better deal out of this? So, so these are all questions. And that was me from a very naive perspective. I was just trying to understand. I'm not saying that the deals are bad or anything. I was just like, you know, why is this? Why, why are these terms what they are? Why not something else? And I was largely interested in, you know, making sure that technology like actually does something useful in the real world, whether it's like through a startup or through a company that licenses it from the university or other pathways I wasn't sure about. But I was really just like not satisfied with the idea that this technology that we'd spent so much of our time on would just end with a paper. And that's how I was doing it at the time. I don't think that always happens. I think a lot of times something does happen with the technology, but I didn't want my role to just end with like, I wrote a paper about it. Cool. Next topic. I'm like, no, I want to see like humans having a better life because of something we made. That was where I was at, opportunity wise. This less technology that we had been working on was developed to a point where it was actually, I wouldn't say easy to scale, but we've gotten it to a point where it could be with some additional resources turned into a product or something that you could create and make in like larger quantities. And in the materials world at the time, at least, if someone made a material that was like a few centimeters or a centimeter by a centimeter, that was sometimes like groundbreaking. Like it was a really big deal if you could make a tiny little thing. But in like the real world, you often need a lot large surface areas to do anything useful. And so we had a technology that looked like it could scale. So that was the opportunity. So I mentioned like my own personal interest and I also mentioned the opportunity which was technical readiness of the technology at the time. And then lastly, we could pursue some opportunities that allowed us to take the next steps towards a company. And the big thing there was the National Science Foundation, I Corps that would fund researchers to do customer discovery. At the time when we did it, there was no local NSF program. We just went straight to national. So we had to do like a hundred interviews, interview people for customer discovery to see if there was a market for our product. We got to do that. That was really hard for me at the time. It was kind of scary talking to people about a product idea. Had never done that before, but it was very satisfying and rewarding. And then finally we did a pitch competition. I gave the pitch, we won that and that funding was $50,000 and it would only go to a company. So that kind of took us to the next level. We're like, well, to get the money, we need a company. We're starting a company.

[00:18:33] Ryan Newman: And your partner text Singh at the time, did he remain as a professor at Penn State or did spin out with you? How did that go?

[00:18:39] Birgitt Boschitsch: Yeah, really good question. So he remained a professor, but he was very involved. I think that sometimes when like a professor and a student start a company, it can be hard to break this like idea that the professor is the boss and like the student would become the employee. We very much did not have that dynamic. I was kind of like, if we do this, I'm going to

be full time. We need to be in this together. He was totally on board, very active. Like, I can't do it myself. I definitely need you. I don't want to do it by myself either. Like, I love working with him. So we ended up with what I think is actually a pretty unique setup where he stayed on as a professor full time, but he was quite active in a way that was very much a partnership. Great.

[00:19:22] Ryan Newman: And so you go on and you have this, this business and can you talk to us about what the business is that you actually created, what the product is, how it's used?

[00:19:30] Birgitt Boschitsch: Yeah. When we officially formed the company, I was about a little more than six months away from graduating at that time. You know, we had the $50,000 of prize money. The previous summer we had applied for National Science Foundation SBIR funding. And so we were anticipating that we were going to get it. We were hoping we were going to get it, but we weren't sure. So, yeah, I basically decided, I'm going all in on this. It was still very much a technology, not a product. We had a vision. So the vision was, we have a slippery material. It's very. It's a highly slippery material, repels liquids, repels viscoelastic solids and sticky substances. The impetus was sanitation, but we could use this in the automotive industry, in the solar energy industry, and wind energy, medical devices. We had all these possibilities for applications that we could pursue. And I think any individual application seemed like it could be viable. And so the idea was like, okay, we've got a platform technology. We have to like make it in one market and then we just kind of copy paste in other markets. And like, this is going to be huge. It's going to be amazing. Obviously, it's very hard to break into those, to even get customer number one and industrial application. But that same year, 2019, when I finally was full time at the company, we found out that we got National Science Foundation SBIR Phase 1 funding. We also got a contract with the Office of Naval Research all quarter one of that year. And then we were accepted into Y Combinator. But it wasn't until November of that year when we'd done some fundraising. We were pitching the idea. We're pitching this, like, vision that we could be a coding for many different industries. Obviously, getting too broad is not. Then you're too diffused, you're not really focused. We didn't have a product yet. We had some potential customers. But November 2019 was when the paper that tech thing and his lab had been working on on this technology was about to publish. I remember explicitly thinking, okay, this is an opportunity. A lot of times papers on this topic and especially in from Texting's lab get a lot of media and publicity. We don't want to waste that. And so I was like, we're making a product and the paper is about toilets. We're going to make a toilet product. So I was like, it's going to be opportunistic. It wasn't like, okay, this is going to be the product that we're selling and this is the future of the company. But I was like, if we can make some money, let's make some money. Commercial sales is great. So I designed the bottle, I designed the label. We bought like, I don't know, like 150 bottles and got them all ready and had a lab at that point. Finally, turns out we sold through them in like, I don't even know, like a few minutes, maybe like an hour. When that paper finally released and all the, you know, publicity around it that really took off and it kind of opened our eyes to what selling a product looks like.

[00:22:20] Ryan Newman: Got a brilliant business idea, a game changing innovation. Ben Franklin, CNP wants to help make it happen. Enter the big Idea contest for a shot at $35,000 in expert business support. Whether you're an entrepreneur, researcher or startup, this is your chance to turn your vision into a reality. Don't wait. Submit your idea today@cnp.BenFranklin.org that's cnp.BenFranklin.org because big ideas deserve big opportunities.

In our research we understand that there was a New York Times wire cutter feature that led to a phenomenal increase in sales over two weeks. I the number here I have is 16,000%. I'm sure that can't be right. Is it?

[00:23:12] Birgitt Boschitsch: Yeah. So I was so. Yeah, it was astounding. It was absolutely astounding. We, so I mentioned like back in 2019, we opportunistically launched this product with the toilet

coating and we kept it on it, kept selling and then had some like ups and downs sales wise. But October of last year the product we've of course like, it looks different, got new labels, looks a lot, lot prettier now. But yeah, Wirecutter featured the product and wrote like astounding, amazingly positive reviews on the, on the toilet coating. Apparently the actual, the author, John he Had bought the product quite a while prior and had been testing it out. And like this thing like was a game changer. The article was just everything you'd want it to be and it kind of came out of nowhere and we're just amazingly grateful. Yeah, I was looking at the last like two week period, the first two weeks of October and comparing it to the first two weeks of September and I was looking at orders. I think I may have mentioned the sales too, but I was just, just the other day checking the orders and it was a 12,000% increase in orders. Yeah. Revenue also like even greater percent increase. So I was like, that was wild. It was wild and unexpected and exciting.

[00:24:28] Ryan Newman: And Birgit, how did you handle that increase in order size? How did you handle that from a capacity standpoint?

[00:24:34] Birgitt Boschitsch: So we saw that the paper came out, we saw the article came out, we saw the orders ticking up by the second literally. And we decided, okay, we're gonna need to deal with a few things. We're gonna have to first deal with inventory. We were suddenly thinking about supply chain. Not just like, okay, we gotta order this chemical or order these bottles. We had to think about everything and the timing and we had to buy more chemical storage space. And we sell direct to consumer. And then we had just recently started selling this product on Amazon and so suddenly we were scrambling to try to understand all the Amazon settings because we didn't know like you could adjust handling time, we didn't know where to look for what. So customers were like expecting two day handling time when we're like selling through all of our inventory. So I'm like talking to customer service, banging down doors on Amazon and trying to learn and get up to speed on a platform that we were kind of brand new to and, and figure it all out as fast as possible. So getting smart on Amazon, dealing with inventory and then immediately after that figuring out hiring were all things that we had to do really fast. Oh, and getting more manufacturing space. So we desperately needed a fume hood to be able to increase our, our throughput, our production. And that's a really rare commodity in Happy Valley. We had a lot, a lot of help from Penn State staff and our fellow folks in the startup community to help us get into some space, even just temporarily to make it happen.

[00:26:04] Ryan Newman: Amazing. Well, when you look ahead, what are some of the additional industrial applications you could see the spotless product being used in and where's your focus in the near future?

[00:26:13] Birgitt Boschitsch: The consumer sales were completely unexpected and, and really encouraging. So quarter one of this year A focus of ours is to see how we can maintain a new elevated baseline of sales given like this kind of incredible exposure we've just had. So that's a focus and it will remain a focus. But we also, all of this time throughout our company's history, we've been working with industrial partners all along. The timelines to sale and timeline time to market in those application areas are quite long, especially because we have some partners in the medical space. We have partners in the medical consumable space. Some diagnostic applications, some just general kind of consumable applications. And these have been making a lot of progress. We've done proof of concept testing, we've done some scale up testing with them already. We even did some safety assessments. Those are coming through and all looking good. But what's next is really going to be can we do some testing and produce the full product with them and ultimately do some clinical testing. So that's what's ahead. That's a huge goal of ours in this really the next like couple months and then near term goal is can we close some next phase deals with them to turn this into a product that's really helping people out in the world.

[00:27:25] Ryan Newman: So that's the goal which is ultimately what your original goal was in the

beginning, to help people.

[00:27:30] Birgitt Boschitsch: Yes, yes, yes. That's. I'm like if it's, if it's there, it's helping a patient that will, I will be so proud when the coding gets to that point. That will be a huge win for me.

[00:27:41] Ryan Newman: Amazingly well. You, you've never left Penn State in the sense that you came to get your PhD and then ultimately you founded this company and you're still in State College. Can you talk about what it's like being an entrepreneur in State College and how that community has supported you through the business?

[00:27:58] Birgitt Boschitsch: Yeah, no, that's a really great question. So. So our company is, has been based in State College all this time. I'm actually currently in Wisconsin because I have a little baby. Congratulations. So my family lives here so we to keep running the company. I need a lot of extra hands at home. So that's what the family's helping me with right now. But yes, it's still very, very plugged into the State College community. I come back and visit a lot. We're based there. I love it there. Really huge key resources out there. You can't ignore how amazing the community is. The people we have a lot of interaction with. Ben Franklin Technology partners. They've been hugely supportive of us. We have funding from them I can talk about how amazing they are all the time. And in fact our community has been really key to helping us navigate that wirecutter like order surge. Not just my team, but friends and family and people from the community all just kind of like jumped in to help us out and that's huge. That's a really big thing. Another really key thing for us as a materials company is the ability to use some of the facilities on a pay per use basis. So when we have either industrial collaboration or funding from the National Science foundation to do technical research and development, we often have to use facilities that we couldn't possibly buy right now. The materials characterization lab for example at Penn State has tons of equipment and we use those facilities on a pay per use basis. And that's really, really key to the innovation that we need to do to keep developing the product and the and the technology.

[00:29:27] Ryan Newman: Well, thank you Birgit for taking the time today to share your entrepreneurial journey with me. I'll now hand things over to our current Penn State student, Vishwanathan Ganesh. Vish is a PhD candidate in the Department of Architectural Engineering at Penn State. He is the entrepreneur lead for NexDC Cool, a Penn State research based startup that aims to revolutionize data center efficiency with AI driven solutions that optimize IT expansion, enhance thermal management and reduce energy consumption. The startup recently participated in both the Invent Penn State Regional NSF I Corps Short Course and the NSF I Corps National Teams program. Vish, I'll now hand the interview over to you.

[00:30:12] Viswanathan Ganesh: Thanks Ryan. I just had few questions for you because as Ryan mentioned I've been to the NSFI Corps and it's been very challenging for me and since you're already through that process and have a startup which does phenomenal, I would love to know what was the challenging part during the customer discovery process in national ICOPs and how did you kind of overcome it?

[00:30:37] Birgitt Boschitsch: Great question. I think there were a lot of challenges and I'll say there's always a grind sometimes trying to get answers and trying to find problem solution fit, product market fit. It's not easy and it's appreciate that you have said that we're doing so well. It's nice to hear that but it certainly comes with all sorts of challenges along the way. The news will highlight the good things, right? The public stuff is always good but I can totally relate to the challenges that you're you're feeling and expressing. When we did the national I Core program, the first thing that I remember was oh my goodness I have to talk to people, and I'm an outgoing person. I like talking to people. But when you're suddenly talking to them on a topic, that is very new. It was very new to me understanding how to present. I knew how to present technical findings. I

had been doing research for a long time, and now suddenly I'm presenting in a hopefully unbiased manner so I could get the feedback, the customer discovery feedback I needed, but presenting kind of like an idea for a commercial product or a commercial direction. And it can be a little bit scary because it feels a little vulnerable. And maybe it's because I didn't feel like an expert, but I really cared about this topic. I really wanted to see if there was a viable company asking questions I'd never had to ask before on a topic that was pretty new. So there. There was that. I think also the pressure of. I Corps specifically has a quota. You have to make a certain number of interviews every week. When you're kind of starting with no network and you're trying to enter a space, you're a researcher, but you're trying to talk to, like, companies and people that work at companies. And that's like a whole new skill set to develop. And even now that I, you know, have to reach out to companies fairly frequently, I know it's hard to, like, get 10 to 15 quality interviews a week. So. So I remember that was a little bit daunting. And in fact, I. I remember a couple people went to conferences and I was like, so that's how they get all their interviews. Like, I was trying to get, like, a quality lead one at a time. And then at some point I ended up, like, interviewing some people just, like, randomly on the street. Like, so what do you think about, like, you know, dirty toilets?

So I think there's definitely, like, a comfort zone. Getting comfortable with a new set of skills and just kind of stepping outside your comfort zone.

[00:32:57] Viswanathan Ganesh: That's great. What are the emerging trends in entrepreneurship or technology that excites you the most right now?

[00:33:05] Birgitt Boschitsch: Oh, emerging trends. That's a big question. I'll have to think about that one. You know, it's interesting. The materials world right now is kind of. I'd say every company that's not like, doing AI kind of feels like we're not cool right now. So, I mean, AI is like the big trend, but we're not super heavily focused on that. But I think something that will come out of that is people are also going to realize how important hard tech and, like, physical technology is to the world, especially while we're spending all of our time in the kind of like virtual world.

[00:33:37] Viswanathan Ganesh: What's the one piece of advice that you would love to give to students or aspiring entrepreneurs who want to follow a similar path that you took?

[00:33:46] Birgitt Boschitsch: Yeah, I love that question. If I step back in my. Remember where I was as a grad student when I was just thinking about starting a company, I think there's a lot of advice on like, what makes an entrepreneur, what qualities you need to have as an entrepreneur, or you know, what makes a good entrepreneur. And I'd kind of say throw that all in the trash. And I really think that what matters is you have a problem that you want to solve and you care about it. If you care about it and it's something you really are passionate about, you'll find all the other skills you need, or you'll develop the skills, or you'll find the right people to work with to like supplement your skills to help make that happen. And this is advice I've. I've heard a little bit later on that like some, some leaders are a little bit quieter, some are very outgoing. I don't think that there's like a personality trait that really matters. A lot of people talk about your tolerance and like your ability to take risks. And I think that can sometimes be misleading because I guess I'd caution against that advice because you'll take a chance on something that you believe in and that you think could work. You're gonna make a thoughtful decision. You don't need to be someone who like goes skydiving to be like an entrepreneur. So that's, that's my advice is like kind of don't get distracted by generic advice. I'd just say stay focused on your A goal, Learn about what is needed to solve that. And of course do like really diligent research to understand the market and like the challenges and the opportunities with that idea that you have. Definitely be comfortable with people testing it, but don't be discouraged by, by, by the other superfluous things that I just mentioned. The other thing is like, I think I didn't feel this way because I had such a great support system from my family to texting my co founder, who's my PI at the time. I

just had a lot of support. So I haven't had a lot of personal experience with people shutting down my ideas. But I think that can happen. And I think that often happens from people that just don't necessarily have like a problem solving mindset. Getting outside the comfort zone is a little scary. And sometimes, like, they'll be like, that's dumb. Don't try something because it's, like, not something that people do well. All the things that are innovative and make a difference are usually things that people haven't done. So, like, don't get discouraged by that either.

[00:36:12] Viswanathan Ganesh: That's great. That's great. Birgit, thanks a lot for answering my questions. Yes, it was great talking to you.

[00:36:20] Birgitt Boschitsch: Thank you so much. I really appreciate it. They're great questions.

[00:36:27] Ryan Newman: That was Birgit Basic, co founder and CEO of Spotless Materials. This episode was produced and edited by our executive producer, Katie D. Fiore. If you haven't already, be sure to subscribe to Dare to Disrupt wherever you listen to podcasts and look out for next month's episode. Thanks for listening.