

The Art of Engineering with Denise McIntosh

Episode 004: Shannon Goodson, Engineering Manager with [Meridian Medical Technologies](#)

Host Denise McIntosh talks with [Shannon Goodson](#) about her early interest in chemistry and how that led to working for a pharma company at a young age. She played a role in the processing and packaging of liquids, powder processing, and blister lines, among other things, and quickly gained respect in the industry. In this episode, Shannon shares how her love for curiosity helped her navigate her son's unique challenges with autism, and how she not only has a passion for the engineering industry, but genuinely loves getting to know other smart and innovative women.

Denise McIntosh *Welcome to "The Art of Engineering." Today, we're talking with Shannon Goodson, engineering manager with [Meridian Medical Technologies](#), a division of [Pfizer](#) in St. Louis, Missouri. And, more specifically, Shannon is a portfolio manager for capital projects for aseptic and sterile. So welcome, Shannon. I do believe that I met you either at an [ISPE](#) event, and I know that we got together in Oklahoma City when we were with...*

Shannon Goodson [Cytovance](#).

Denise McIntosh *Cytovance, yes. Okay, so, you've been a few places since there, but then we'll go start at the beginning.*

Shannon Goodson *Oh gosh.*

Denise McIntosh *How did you get started in engineering? And what was it as a kid that got you toward engineering?*

Shannon Goodson *You know, I was looking at that question, and I was like, you know, "Did I have anything in particular?" And the short answer is no. But, you know what? I've always been really interested in math and science. I was the oldest of five kids and I have three brothers and a sister. My dad has always been a tinkerer. And then when I was in high school, he bought a cabinet company. And so he ran a manufacturer, owned a company, you know, and he always was working for manufacturing companies, and building, and stuff like that. And so I think I've just been always around it. And I remember, you know, really young asking him to come build me, "I want you to put together a toolbox for me, take me to the store, build me a toolbox. I want to be able to have all the tools that you have, you know, what screwdrivers, whatever." You know,*

and I've never been afraid to ask him, you know, more than once I've called and said, "Okay, I'm changing an electrical light bulb, or light outlet, what do I do? You know, just to make sure. I read the instructions, but tell me in your words." You know, so I've always been really interested in putting things together, and assembling, and that, so...

Denise McIntosh *Fun!*

Shannon Goodson *Yeah. So when I went to high school, I went to an all-girls high school here in St. Louis, and I really did a lot in math and science. And I was kind of like, "What do I want to be when I grow up?" And I remember my mom saying, "You know what? You really need to look into engineering." And I'm like, "What? I don't want to be that." She's like, "Well, let's look at all the different things and all the different types of engineering there is." And that's how I settled on chemical, because I really liked the idea of having a hand or a part in making either home products or pharmaceuticals, something that I can walk into a store and say, "I know how that was made. I had a part of that."*

Denise McIntosh *Aha! And what's in it.*

Shannon Goodson *Yes.*

Denise McIntosh *So I think it's interesting that your mother pointed you to engineering.*

Shannon Goodson *She did. But my dad's family is, actually, my dad was in the Navy and then owned his own company. But my great-grandfather was an inventor, actually, for Westinghouse in Chicago. He invented the mercury light switch, or, like, the mercury switch and the light in your thermostat, some aerial antennas, some different things that, actually, you would probably know.*

Denise McIntosh *Wow!*

Shannon Goodson *Yeah. So when I look back, I'm like, I know exactly where that came from, where those genes all came from.*

Denise McIntosh *So a line of inventors.*

Shannon Goodson *Yeah.*

Denise McIntosh *Awesome! What was your college experience like?*

Shannon Goodson College was interesting. I was, actually, I struggled on the social side. I actually started school on the east coast, and so I was much younger than most of my classmates as I was going through high school. Almost to the point where they were a year, year-and-a-half older than I was almost. I think it was just figuring out how to balance all of that together. "How do I do the things that I want to do and get my schoolwork done?" And, "Oh, there's boys here." And, you know, parties and everything like that. I really struggled with that. But, really, class-wise, it was good. We had about, I think we had thirty-five or forty kids in our class. We were chemical engineering, I went to the [University of Tulsa](#), and probably almost half of them were female.

Denise McIntosh Really?

Shannon Goodson Yes. We actually had a lot of women in our class. So, probably, there was probably fifteen to twenty of us.

Denise McIntosh So tell me about your first job.

Shannon Goodson My first job was... I didn't actually have a job coming out of college, which was like, I don't know if I didn't work hard enough, or didn't realize it, or started late, or whatever. But I actually got on as an intern for a company here in St. Louis that made silicon wafers. And did my internship, and then they were expanding a company down in Texas, North Texas, about an hour north of Dallas. They were expanding their joint venture that they had with Texas Instruments. And so I got on out there as a process engineer in one of the areas. So I lived in Sherman, Texas. So here I am, this little, 23-year-old, blonde hair, blue-eyed, northern girl, going down to Texas, and I'm living in rural North Texas by myself. So that was quite an interesting experience.

You know, just the operators, and the dynamics, and just, you know, there was a lot of old timers, and just a lot of things going on. And then right, not too long, about two years after I was there, the industry tanks. That made a whole other level of, you know, microchips tanked in the late nineties. And so that's, you know, everything was up in the air at that point. And that's when I actually came back to St. Louis and got into pharma as a process engineer for a little pharma company. So that's how I got into pharma and I haven't left yet.

Denise McIntosh So how was the pharma job different from the chip job?

Shannon Goodson Well, first of all, it's clean. You know, just learning cGMP, or cGMP regulations, and, you know, going through that, just the differences in that. And I'm, I'll be honest again, oldest child, rules girl, I'm all about following the rules, and making

sure you understand, and black-and-white, and, you know, "This is right, this is wrong." And so for me, it was great because I understood that. I understood, "Here's what you need to do. This needs to be made out of this material. This has to be this. We write all the procedures, everything has to be outlined." I really enjoyed that aspect of it.

And I was a process engineer for their packaging manufacturing, and I learned everything, so I learned liquid manufacturing and filming. I put together, we were moving from one location to another, so all of the packaging lines and all of the processing lines were moving from one building to another. So I was in charge of helping to develop that process in addition to doing all the validation of that. And so we did liquids, powder processing, tableting, capsules, and then liquid fill, and then solid dose fill on that. And then blisters, we actually did a blister line too. So I actually set up a blister.

Denise McIntosh *Wow, so you learned not only how the products were going through processing, but then also all the way to the packaging, getting to the end.*

Shannon Goodson *Yes.*

Denise McIntosh *So you crossed a lot of departments as this young, blonde, blue-eyed female. How did you maneuver all of that and work with all those people?*

Shannon Goodson *It was interesting, you know, I had a mentor, or I had a, my boss at the time was a female who was probably about ten, probably fifteen to twenty years older than I was. And she was really good about explaining stuff. But at some point, I don't know if I made her mad or something, but all of a sudden it was like I got cut off, and all of a sudden everything switched, and it was just like, I couldn't do anything right anymore. So it was really an interesting dynamic. It was interesting, you know. I worked a lot, I worked really closely with the pharma, the maintenance guys, and I worked with production and, you know, I just really had conversations and really understanding and just really, I loved being hands-on with the equipment and running and hitting the buttons and, you know, asking a lot of questions. I've always asked a lot of questions. I have a learner personality. So I like to, you know, it's not, "I'm asking questions to see if I can get you wrong." It's, "I generally want to know, tell me, explain this. I want to understand."*

Denise McIntosh *Being curious. I call those lifelong learners.*

Shannon Goodson *Yes.*

Denise McIntosh *Those are the people that I like to work with because we can be curious together.*

Shannon Goodson *And I'm still doing it. We were doing a project and I'm like, "Okay, wait a minute. Before we get started, explain how this all works to me. Let's back out, you know, all the hoses, and piping, and stuff, and let's... Okay, explain this to me. What are we doing?" And then it's like, "Okay, so now we're running." Then it makes more sense to me. If I don't understand it, it stresses me out if I don't understand how the mechanisms and everything work.*

Denise McIntosh *When I met you, you were in Oklahoma. So how did that transition happen?*

Shannon Goodson *I was single, I don't have any kids or anything like that, and I just was to the point where I was like, "You know what? I feel like I need a different change of scenery, and, just, I need to get out of St. Louis and just go see what's going on." And so I applied to different areas of the country that I had consulted in, and knew that I liked, and had an opportunity to move to Oklahoma. And so, went down there to work for a large oral solid dose manufacturer down there, and was down there for about a year and a half with them. And, I, my boss and I did not get along. And it was just not a good fit for me. I think there was some different things that were going on. And so that did not end well. And so then I ended up going to a biotech, the biotech company in Oklahoma. And I stayed there for about two years and then went back to consulting after that.*

So, and then I have some experiences. I have a son who has been diagnosed with autism. And so he is seven right now, so at the time he was four. And so kind of in that pre-K, coming into grade school, and we had some personal things going on in our family, just some loss that we had. And I said, "You know what? I feel like I need to go back to St. Louis. There's better opportunities for him. Plus, I just really want to be closer to my family." And so we made the decision, I was still consulting, so my husband changed jobs to St. Louis, and I was still consulting, and came back to St. Louis, and I consulted for about another year, and then got recruited to go work for [Pfizer](#). They asked me to come work for them. So, yeah.

Denise McIntosh *Great! So I'm just thinking, because I have other friends with autistic children, that having a mother with the curiosity that you have is such a blessing.*

Shannon Goodson *Well, thank you. He's, it's been an adventure. You know, he's really, he loves math and science. He loves to cook with me. He loves to go do lots of different*

things. He's not a big fan of reading and writing. Though he loves books, but he doesn't really like the reading of the books themselves. And he doesn't care to write, which is what we struggle with. And, socially, you know, I always feel like I'm a little socially awkward by myself. But yeah, you know, we've tried to really put him in some programs and be exposed to some different things. But the program he's in now in the grade school he's in is phenomenal. He is in a mainstream classroom with a special ed teacher that works with him every day. He has some class time with them, plus some other OT and speech therapies, and stuff like that. And so he's done great. He's done phenomenal.

Denise McIntosh *Good! So what advice would you give other young people, I'm not going to limit this to young women, what advice would you give young women engineers today, or just looking at the STEM possibilities?*

Shannon Goodson *Yeah, you know, one thing that I've learned over the years, and I have to remind myself all the time is, there's a little phrase. It's called "WAIT," and it stands for, "Why am I talking?" So, I saw that somewhere and I was like, "Oh, I need to remember that." Because, and I know, like when I was younger, actually my first job out of college, my real one down in Texas, I remember, you know, "I have a degree and I know all this stuff, and I just know." And apparently I did not come across very well with a lot of people. I think I rubbed some people the wrong way. And I finally had it.*

There was an older woman who worked, she was the tech in the group, and so she was kind of the maintenance tech and stuff on that in the group. And she pulled me aside one day and she's like, "Look, you have really ruffled the feathers of a lot of people by kind of plowing through and saying, 'This is what we're going to,' as opposed to really asking what needs to be done and listening." And I did not realize it, of course, you know, beboppin and thinking I'm all that the bag of chips. And I'm like, "Ah, that's interesting." And so I've really tried to do that now.

Sometimes I have to be careful because, "No, no, no, this is what has to be done." And I still have to remember that some days, it's like, some days I just have to be, "Listen." Or if you're gonna be upset, or be whatever, do it offline with somebody you trust, a mentor. Or even my husband and I talk a lot, you know, I'll kind of vent to him for a little bit, and stuff like that, about things that are upsetting. And then sometimes looking at a different perspective works. But definitely listen more, talk less, you know, be deliberate in what you're saying, not just to make noise.

Denise McIntosh *Oh, that's a great one. And I think it's interesting that it was another woman who pointed that out.*

Shannon Goodson *It was, it was.*

Denise McIntosh *I had, not that same thing, but it was a gentleman that was one of my customers when I was in the ag industry. And we were at a trade show, lots of people around, he and I had made it a point to get together to visit about some items, some issues. And while we were talking, I, apparently, my eye was wandering, you know, to see who else was there. And he said to me, "Denise, we made it a point to get together. Will you please look at me when we're talking?" Wow! What, I don't know how many times I thanked him after that. But it was like, "You are absolutely right." It's the focus, it's the, "Yeah, why am I talking? Why am I looking around?"*

Shannon Goodson *Exactly. You know what, in meetings too, especially like, you know, when you've got some higher-ups and stuff, and, you know, I get frustrated and I, you know, some of the other questions that you had presented, you know, I have had situations where I did all the research. I was asked to do the research. I put together the presentation, I put it all together. I know my stuff inside out. I presented it and nobody thought much of it, or, "Oh, that's nice, whatever." The same information is presented by somebody who is not female, and all of a sudden it's like, "Oh yeah, we need to do that! Great work!" And I'm like, "Oh my God, are you kidding me right now?" So, yes, it's hard for me because I get really frustrated in that situation where, and that has happened more than once, you know, so stuff like that happens.*

Or, you know, when you, I have a tendency to, I tend to be kind of a strategic planner and strategic thinker. And so it's not, you know, on the surface. "Sure, we can do that." But then I kind of go, "Okay, but wait a minute, let's think about this. So if we do that, then that could possibly affect this, this, and this, and six months from now we're looking at putting that in, and that's supposed to go in that same location, so how are we going to be able to do that?" You know, I get the strategic thinking, and start going ahead, and people get so upset because I start doing that. And I'm like, you know, and then six months from now, when they're doing that, they're like, you know, "It doesn't matter. We'll just figure it out later." So six months from now I'm like, "I talked about this six months ago, guys."

Denise McIntosh *"Shannon brought this up."*

Shannon Goodson *It's like, "We talked about this already." But, of course, they forget it and, "Why didn't we know?" And I'm like, "We did know. We brought it up. You told us not to worry about it."*

Denise McIntosh *Yes, I've had those same things happen to me. And I guess part of my resolution is, "I guess if they've heard it, you know, maybe they had to hear it the second time for it to sink in to be a good idea?"*

Shannon Goodson *Maybe, I don't know.*

Denise McIntosh *But you're right. I think some of it is because we are a different flavor and not taken quite as seriously on occasion.*

Shannon Goodson *Yes. You know, I try to explain to people. I said, "I have to, I feel like..." They're like, "Why do you work so hard to, like, prove yourself?" And I'm like, "Because I feel like I have to everyday. I have to prove that I know my stuff, that I am worthy to be here, that I'm okay, that I'm, you know, supposed to be where I am." Luckily, the people in our group, we kind of move. We were on a special project and then we've moved, I've moved, into the full department, and it took a little bit. These guys still, there's a couple of them that don't like strong females. There's a couple of them that, you know... And it's not necessarily just because I'm a woman, some of it's because I'm younger. I'm like, "Yeah, but I've been around for 25 years so it's not like I'm fresh out of college." And, you know, they just don't believe that I can do stuff. And so I have had to, it's been a while to just kind of prove to him that, "Yeah, I'm getting stuff done. We're working with you. What do we need? How can I...?" You know, I feel like I almost have to prove myself everyday. Some days are easier than others.*

Denise McIntosh *I agree. So I know you've been involved with ISPE and the [Women in Pharma](#).*

Shannon Goodson *Yeah.*

Denise McIntosh *So can you tell me about your involvement there and what impact that may have had on your career?*

Shannon Goodson *Well, I got involved in ISPE I guess back when I was consulting, engineering consulting. You know, it was just, you know, we got to go to different events and stuff like that, and so I got involved with that. And, you know, I was joking, I think last year at the Women in Pharma event that we had before Tech Day, last year in Kansas City, I think I made the comment, I said, "I love smart women. I love being around smart women." And that goes for everything that goes for all walks of life. That's people in my family, people just that I know from my parent groups, and just everything like that. I just really enjoy being around smart women.*

And that doesn't necessarily mean women who have advanced degrees, and are inventing, you know, and changing the world. It's women who understand their place in the world, and how they affect other people in the world, and how they are being smart about how they run their family, and making good decisions and, you know, being very deliberate, and just really are smart, and just not just floating along with the world. It's just being conscious of other people, and their kids, and how they affect them, and how they're raising them. And just, it's really hard to explain, but you can tell people who really get it and are just the people that you can have a deeper conversation with, either about something in the world, or current events, or even something scientific, or even, you know, "Here's, what's going on in my real life," and, you know, "We're struggling, and what are we doing?" And, you know, "How are you solving that problem?" and stuff.

It's just, I really enjoy being around other women that are very authentic and have organic conversations about that. And so, you know, Women in Pharma, and especially ISPE, has been great. Especially, there's a lot of women engineers in pharmaceuticals. You know, a lot of women tend to go to the chemical, which then kind of leads to the pharma. Not all the time, but there are, there's a lot of people on that path. And especially in the bio, when you start getting into the bio, there's a lot of women who are in the bio. And so you just kinda meet some really cool, interesting women. And I just love, you know, sitting in these conferences, and sitting in these, and listening to people speak, and just say, "Okay, I get it." I, you know, there's great women, you know, there's always great guys and everything like that, but I just love, you know, I love friendship. I love these great, smart, awesome women that talk about things that have happened in their lives, and how they overcame, and that, you know, there's so much going on in so much, you know, in being leaders and that.

Denise McIntosh *Well, I agree. You and I sat together at the Women in Pharma dinner in Kansas City. But the same thing happened when I went to the annual meeting and went to the dinner. There, you know, sat with women I'd never met in my life. And by the time we left, it was the most authentic, real conversations among really smart women.*

Shannon Goodson *Yes.*

Denise McIntosh *It was just fun. And no one had an idea that you couldn't talk to somebody cause you'd never met them before. But it was like you just started the conversation and went wherever it went.*

Shannon Goodson *Yes.*

Denise McIntosh *Anything else you'd like to add today? This has been a delightful conversation.*

Shannon Goodson *No, not that I can think of... You know, I think everybody's path is different, you know, but definitely I recommend seeking out mentors. I've had several mentors along the way. I've got a couple now that I look up to. I have peer mentors. I have, it's actually in the group that I'm in, the engineering group that I'm in right now, there's a woman who, she was our project manager on our special project, but now she and I are even. I run part of the group, and she runs kind of the financial part of the group. But, you know, there's days that I call her and I'm like, "Oh my gosh, this is what happened. I need your thoughts. What do you think?" You know, so we'll go back and forth and have those conversations.*

And it's not so much, you know, "Tell me what to do," but it's, you know, "Here's what I'm seeing, what is your perspective on this?" Or, you know, or we'll be on a call together, and I'll say something, and I just come off thinking, "Oh my gosh, I was a disaster." And I'll call her and say, "Am I crazy? Am I crazy to be upset about this? Did you see that? Did you get the same vibe I did?" And she'll go, "Yeah, sure did," or "Probably not what you needed to do, but here's what I know, and here's what I see, and, you know, maybe next time we'll have to think about it." So, you know, I like having those conversations in those, you know, I have several people around that I'll just walk in and meet, and men and women, and say, "Here's what's going on. Here's what I'm thinking. What do you think? Am I crazy?" And so, you know, I always recommend having that, people that you trust that aren't going to use that information against you obviously.

Denise McIntosh *Yes, good feedback.*

Shannon Goodson *But, you know, that you're, "Here's what I know." You know, I've had, you know, I've had coworkers that have discounted me in the equivalent of patting me on the head and sending me on my merry way. And I'm like, "Are you kidding me right now?" You know, I had somebody tell me that I needed to choose between my job and my family because I said, "I can't travel for three weeks. It will send my son into a tailspin." And they said, "Well, you need to choose between which is more important." "I'm sorry, what...?"*

I had an experience where, when I was pregnant with my son, I was pretty much pushed aside when I came back from maternity leave and thrown under the bus pretty hard. So I made the choice to separate from that company, that organization, and just, things weren't going to get any better even though I expressed concerns things weren't

going to change. So you never really know when that's going to happen. You know, sometimes you can't change it.

Denise McIntosh *Right.*

Shannon Goodson *Sometimes it's less damage to leave.*

Denise McIntosh *To change yourself.*

Shannon Goodson *To change your, or change your surroundings, and just accept the fact that it's not going to be different.*

Denise McIntosh *It's interesting to me how different cultures, how many different cultures there are in different companies.*

Shannon Goodson *We, Pfizer is really big on socialization. So anytime that you have projects that are going on, that you are requesting funding, if you're looking to make some changes and stuff like that, we have meetings and formal situations, but they put a lot of emphasis on socialization. So you'll have like a pre-meeting meeting. So you'll get the key players in, and you'll talk through it, and explain it to them so that when they go to a larger meeting, you already have allies on your side. I've never seen, I've seen it kind of very casually. This is the first time I've seen it pretty much institutionalized that you socialize. That's where they call it, socialization. You have to go socialize this project before you ask for, before you formally request.*

Denise McIntosh *Oh, that's great.*

Shannon Goodson *So it's been a little interesting. And for a bunch of engineers that aren't real social, it's hard to explain to my team that, "You got to go talk to them. You can't just send an email. You got to actually talk to them."*

Denise McIntosh *Yeah, you can't just look at your shoes.*

Shannon Goodson *Yes.*

Denise McIntosh *Yeah, but communication is still important.*

Shannon Goodson *Yes.*

Denise McIntosh *And the eye contact.*

Shannon Goodson *Yes.*

Denise McIntosh *But we learned lessons in that, Shannon, so we can help others.*

Shannon Goodson *Yes, that's right.*

Denise McIntosh *Well, Shannon, thank you so much for a fun conversation.*

Shannon Goodson *No problem, thank you.*