

Episode 81

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SPEAKERS

Jason Duff, JD Yoder, Ethan DeLeon



JD Yoder 00:00

The organizations that survive long-term and, and thrive out-execute everybody else, right? So it's not just about— it's not just about the idea. It's not just about the product. You have to execute the business processes and do that as well or better than your competition.



Ethan DeLeon 00:20

Welcome to the Small Nation Podcast, brought to you by Coverlink Insurance, where people are more important than policies. On this show, we unpack lessons from entrepreneurs, break down development strategies, and do deep dives on small town success. Our goal is to provide value to our listeners by hosting conversations that teach, inform, and inspire. Hey everyone, my name is Ethan DeLeon, and I'm here in the studio with the founder and CEO of Small Nation, Jason Duff. Today we're excited to have the Dean of Engineering at Ohio Northern University, J.D. Yoder, on the show. J.D., welcome.



JD Yoder 00:53

Thank you so much. Great to be here.



Jason Duff 00:54

J.D., I've been excited about this episode because we've been friends, but JD is someone that I consider a mentor, and he's really paving the way, preparing students today with this idea of the whole value of an engineering education, but thinking about things entrepreneurially. And so I'm kind of excited to unpack that today and hear more about your journey, but then also just how things are evolving for engineering and that whole spectrum of the various types of engineers that are out there, and then how engineers are, are using entrepreneurship, whether they're starting small businesses. Or, uh, I know before the episode we talked about AI and like how AI is part of the buzzword about every industry. Sure. Um, how, how we should be thinking about that. So again, just thanks for being in the studio today.



JD Yoder 01:46

Absolutely my pleasure. I look forward to the conversation.

J

Jason Duff 01:47

Yeah, well, uh, tell us a little about where you are from, where you grew up, and, uh, I want to hear a little bit about your background and your educational journey.

J

JD Yoder 01:57

Sure. So I grew up in Elkhart, Indiana. That's where most of the RVs are made, is how people know that area now. North Central Indiana.

J

Jason Duff 02:06

And it's like the RV capital of the world.

J

JD Yoder 02:08

Really? It is. There's actually the RV Hall of Fame.

J

Jason Duff 02:11

Is there?

J

JD Yoder 02:12

There we are. Yeah. So grew up there and chose to attend Notre Dame, which is not far from there.

J

Jason Duff 02:19

We've heard— have you heard of that university? I think so. Yeah.

J

JD Yoder 02:21

Somewhere. Had a really great experience there. Chose mechanical engineering as my major and was able to, was working part-time and that eventually led into a business, which I'm sure we'll talk about more. But yeah, I had a great experience at Notre Dame, both for my undergraduate degrees and I did graduate school there as well.

J

Jason Duff 02:42

So for those listening that may not be familiar with engineering, what is, you said mechanical engineering, right? What is that?

J

JD Yoder 02:49

So mechanical engineers really focus on making sure things that move, move in the right way, right? So that might be the engine in your car, it might be the car itself, it can be airplanes, it could be machinery in a factory, uh, it can be power equipment, right? So, so any place that something's moving, there's a mechanical engineer that's had a piece in that.

J

Jason Duff 03:10

And we have a lot of people that are working to save buildings in their town and renovate— renovating them. I can speak firsthand that having a mechanical engineer to help you look at your HVAC systems, helping you look at plumbing systems, all those kind of things that are behind scenes in a building. But if you don't have that stuff designed well, uh, it could be problematic later on.

J

JD Yoder 03:36

Absolutely. And I mean, one way to think about engineers is like offensive linemen in football, right? Which is you only hear about them if something goes wrong. Ah, there you go. But if, uh, you know, as long as when you turn the faucet, water comes out, and as long as your building is comfortable, nobody worries about the engineers, right? It's only when something's wrong.

J

Jason Duff 03:55

Yeah, that's a great perspective. So did you always want to go into the world of engineering, or what kind of inspired that?

J

JD Yoder 04:03

No, I don't think— I don't think I grew up thinking that. I was fortunate to be there at a time when kind of computers were a relatively new thing for homes. Right. And I had a paper route. I guess that was my first entrepreneurship.

J

Jason Duff 04:17

Hey, that's a great way to start.

J

JD Yoder 04:18

Yeah. Saved up money, bought a computer, taught myself how to program, and was able to do some things with the school competition team. And a local company that did factory automation where they were just starting to use computers needed somebody who could program newer computers. So I got hired when I was in high school to do that and saw there what engineering can do, right? That not just could I change a line of code, but now a machine that wasn't working did work when I changed a line of code. And that kind of got me hooked on, on that path.

J

Jason Duff 04:50

Great. So I guess from, from college on and going to Notre Dame, talk to us about your experience there. And then what was your first job out of college, and you said you eventually, uh, started your own business. So take us on that journey.

J

JD Yoder 05:02

Yeah, so, uh, had a great experience at Notre Dame. Very, uh, uh, still have good friends from there that I get together with regularly. Um, a very community-focused school, which for me was the right thing I needed at that time. And, uh, honestly, I kind of accidentally started the business. Uh, so the company I—

J

Jason Duff 05:23

How do you accidentally— please tell me— start a business?

J

JD Yoder 05:26

So The company I talked about, I was working there full-time in the summers and then part-time during the school years, both in high school and college. And they decided to stop doing automation equipment and just sell the supplies, so motors and pieces of conveyor, that kind of thing. And some of the customers that I had been working with asked if I could continue doing the work I was doing where those machines were now installed. I did that, they paid me, and then I did my taxes for the first time as a self-employed person. And my accountant suggested suggested maybe you should start a business if you're going to keep doing this. So I, I did.

J

Jason Duff 06:03

Can we put a button on that? Because I think for everyone in their entrepreneurial journey, you know, the first time that you can exchange services or an idea or something you make and get paid, that's a pretty awesome experience. It feels pretty good, and you're like living on cloud nine thinking like, look at that money, whatever that top line number was. Until you learn you've got to pay taxes.

J

JD Yoder 06:29

Yeah, yeah, yeah. Not just income taxes, but self-employment taxes and, you know, the Medicare.

J

Jason Duff 06:35

Yeah, all the things. And I think that's sometimes a gap. And I know through a lot of our podcasts we brought on attorneys that talk about, uh, you know, how to set up different entities. And then we've also had guests like accountants that have said, hey, these are, these are ways to like set up your systems to track that. But for you, you did— did you, did you learn the hard way of like having a big tax bill or like what was it that— Yeah, yeah. I mean, you had to learn by going through it.

J

JD Yoder 07:02

Yeah. Yeah. I mean, I was naive in a lot of ways. Probably wasn't ready for the level of things I was doing. Right. And when I started the business, I thought this would be just me. Within a few years, I was having to hire people because the business was growing. Something else I was naive about. So I learned everything the hard way.

J

Jason Duff 07:21

That's crazy. When, when did you hire your first employee after starting?

J

JD Yoder 07:25

Do you remember? I would have been in grad school, so probably year 2 or 3 of having the company.

J

Jason Duff 07:32

Yeah. While in grad school too.

J

JD Yoder 07:34

Wow.

J

Jason Duff 07:34

That's a heavy load.

J

JD Yoder 07:35

Well, that's why I had to hire people.

J

Jason Duff 07:37

And so you worked, you had a paper route. But I think I know this about your journey. Were you a server as well? Did you wait tables?

J

JD Yoder 07:43

I did not.

J

Jason Duff 07:44

You haven't had that experience.

J

JD Yoder 07:45

Okay.

J

Jason Duff 07:45

Well, so it was with the programming and helping this small business. And that kind of, you know, led you on to what's next.

J

JD Yoder 07:55

Sure. So as I got towards the end of graduate school, my wife and I had decisions to make and she was looking for a teaching job and found one in Bluffton, Ohio at Bluffton University. So we moved here and I decided to just go full-time with the business and grow that business. And did that for several more years after the move.

J

Jason Duff 08:20

So you grew up in Indiana. I don't know where your wife is from, but why Bluffton, Ohio?

J

JD Yoder 08:28

So the academic world is pretty small, right? Like, you know, a given year in the specialty you want, there aren't thousands of jobs. There's maybe 50 jobs. She's a sociologist. And so of the options that she had that worked out best for the combination of us, right? I was able to keep my business going. If we had gone much further, I wouldn't have been able to do that. Gotcha.

J

Jason Duff 08:51

Gotcha. Cool. And, you know, Bluffton, Ohio, if you guys haven't been, it is a quintessential small town. It is, you know, beautiful lined streets of historic buildings. It's home to Bluffton University, which, you know, in terms of news, it's been significant in the news because of a merger with Findlay University. And so they're, you know, they've got a partnership now. But just in that region of Northwest Ohio, you've got some really great institutions, you know, the places we've mentioned, Bluffton and Findlay. And of course, today, with your role, you're a dean at Ohio Northern, but lots of good independent colleges kind of close by.

J

JD Yoder 09:37

Absolutely. Yeah. And certainly didn't move there thinking that I might work at Ohio Northern someday, but I'm glad it's worked out that way. It's— there really are a lot of institutions with great histories nearby. Teaching—

J

Jason Duff 09:52

you— did you always have a passion to want to teach others, or is that something that developed?

J

JD Yoder 09:57

It definitely developed over time. That's not the reason I, I didn't desperately want to teach. And that's why I stayed in graduate school. Right. I just was keeping options open and that was the best avenue at the time. So I thought I'd spend my whole career in industry or as an entrepreneur.

J

Jason Duff 10:18

Well, and then, I mean, I know from our previous conversation that the rest of your journey here, but walk us through, you know, after making the move, your, your wife is plugged into Bluffton University. You're still running your business. Take us through the next few years.

J

JD Yoder 10:31

In your professional journey? Like I said, I learned everything the hard way, right? So I was trying to bootstrap everything. I never borrowed money to do this. We were working remotely before that had kind of been invented. So there were lots of obstacles there, but had some success both with industry and with government contracts, did some SBIR programs. So if any of your listeners are technical, that's— that program still exists. A great way for small businesses to get ideas moving forward.

J

Jason Duff 11:01

And just, just because you shared it, what— sure, how do people find out about that?

J

JD Yoder 11:05

So sbir.gov. SBIR is Small Business Innovative Research. Ah, okay. And any federal agency that has an R&D budget, so things like NSF but also NASA or the Army, has to allocate a small percentage of that budget for the SBIR and STTR programs to allow small businesses to kind compete, play in the tech development world and very competitive programs. But I had success with those as well as more and more automation work. Things were going well. The business was growing. I was hiring more people. We probably were up to about 7 people, had 2 folks leave in the same week. Both had kind of dream job offers come up. So I didn't have anything but good feelings about that. But I was— I wasn't smart enough at that time to say, okay, I need to take a pause and get some new people hired and keep this going. My solution was just, I'll do their work and my work.

J

Jason Duff 12:06

Oh yeah, that always works out well.

J

JD Yoder 12:09

Yeah. You know, we had contracts with delivery dates and in the automation world, when a factory shuts down, you have a narrow window to get something in there. So I just worked a lot. Got most of those things installed, was feeling pretty good, came home, glad to see my wife after being on the road quite a lot, working 100-hour weeks. And she said, you know, if, if you want to keep doing this, that's fine, but there's no reason for us to have a house and a dog, right? I need something that's easier for me to take care of if you're going to be gone this much. And kind of out of the blue, the very next day, I got a full-time job offer at a company I'd been trying to solicit as a, as a client. Right. And I kind of took that as a sign. And they gave me the benefit of the time I needed to kind of wrap up the projects I had and sell the rest of the company to one of my coworkers and, and kind of feel like I was in a good place where I was ready to move on. And they allowed me to do that and made it easy to say yes.

J

Jason Duff 13:12

Mm-hmm. We were talking a little bit before the show. I mean, that couldn't have been an easy decision. Obviously, you've been building that for the past several years and you were successful in it, sounds like, and you had other people relying on you for income. So like, talk to us a little bit about your thought process. I mean, we got the bones of the story there, but what was that, you know, in your head? What made you leave your own business to kind of go to the more traditional 9 to 5? Sure.

J

JD Yoder 13:41

So I'm going to answer that in a slightly different way first, and then we can, we can drill down if you like. I think there's a lot of things I didn't know, right? I've talked about being naive at that time, and I think when I first started the business, it was because I wanted to do the work, right? Like the way to keep doing that work was to start a business.



Jason Duff 14:00

Yeah.



JD Yoder 14:01

And it wasn't that I wanted to build and grow a business and become a manager and become a CEO or anything like that, right? For some people, I know that's the dream that gets them into entrepreneurship. Entrepreneurship. For me, this was work I love doing. I found it fulfilling, right? Again, seeing stuff work that didn't used to work. I love that. Making companies more efficient. I love that. So I think I didn't spend enough time thinking about how that role was going to have to change as the company grew, especially if this was going to be a long-term thing. Yeah. And at the time, I didn't have the skills or the desire to really be a full-time manager. And so I already had that question kind of in my head, like, what's, what's the long-term path for this? And I think I would have a different answer today at this stage in my life with more management experience. Right. But at that point, it was a hard decision, right? You start to build up clientele, it starts— it's much easier to, to your point earlier, Jason, right? People ask me what entrepreneurs make, especially engineers. Entrepreneurs make customers, right? And once you have a good customer base that's happy with it, it's hard to step away. But it felt like for me, for my family, for quality of life, for what I wanted the next X number of years to look like, right? I wasn't on a path that I was super excited about for the long term.



Jason Duff 15:27

Yeah, you had no interest in really being the executive figure. You just liked the work. That's a very interesting perspective, and I appreciate you sharing that. And I think there's plenty of room in the ecosystem of industry to have people that identify as being an entrepreneur. But there's also a lot of people that we need that maybe have a different label or title that they use entrepreneurial thinking in a larger company. And, you know, sometimes the buzzword is calling those people intrapreneurs. And I think that, you know, a big thing is the loneliness. And we've had guests on that have talked about the cost of entrepreneurship. I think back to Matt Brown, on in his episode of highlighting, yeah, owning multiple restaurants, going through COVID, going through a divorce, you know, struggling with an addiction. Like, those stories are, are more common than not. And so you do kind of have to evaluate based on your life conditions, um, you know, how much risk you want to take on and then how much you're willing to sacrifice, uh, and then also like what your, your end goals are. So you, you made that decision to go work in a for— or an enterprise that was not yours. But you brought together all the skills that you had learned, which I would imagine was pretty desirable from a potential employer.



JD Yoder 16:51

Absolutely. I mean, I couldn't agree more with the entrepreneurship as well. And if you've seen the interview with the CEO of NVIDIA, they asked him, what, what would you do differently if you were to do it again? And he said, I wouldn't do it. It's cost too much. Wow. Yeah.



Jason Duff 17:04

Powerful statement. And that right now is probably the hottest company, though.

J **JD Yoder** 17:07

Exactly.

J **Jason Duff** 17:08

Maybe largest market cap or borderline in the world, right?

J **JD Yoder** 17:11

It is. It is. And so I think those questions are important. Again, something I certainly didn't ask myself getting into it and, and answers things I would answer differently today. You know, I've helped other people start businesses since then, right? With, with the right backing, with a little more knowledge than I had when I got into it. There are lots of ways to mitigate some of those things. But you're right, there is a cost and And we desperately need that entrepreneurial thinking from, from employees everywhere. Right. Not just from entrepreneurs. Right. I think you talked about this before, but I've been part of that kind of trying to educate entrepreneurial engineers for about 20 years now. And boy, the idea that, you know, the stereotype of engineers is if anybody has one, it's Dilbert, right? Who's sitting at a desk waiting for a product.

J **Jason Duff** 18:02

Do you even know—

J **JD Yoder** 18:03

Okay, we have a younger group here. So, yeah.

J **Jason Duff** 18:08

Dilbert, a very famous comic, right? So tell me, preview a little about his life.

J **JD Yoder** 18:14

So Dilbert's pretty miserable sitting at a desk and problems show up. He has no idea why they're important and it's his job to solve them. And there's crisis on every comic strip that shouldn't be a crisis, right? Yeah. But the stereotype for engineers is that they sit around and solve problems and there is problem solving to the job, but really it's about creating value. Right? And I think the engineers that understand that, that understand why this problem matters, who is this— if you solve this problem, who are you helping, right? How is that generating revenue for the company? Or if it's for a nonprofit, how is that— there's still a kind of value you have to be creating. And so it's just critical that we get employees throughout organizations that have that entrepreneurial mindset. Even if they have no desire to be entrepreneurs.

J **Jason Duff** 19:03

Yeah.

J

JD Yoder 19:04

Yeah.

J

Jason Duff 19:04

I really wanted you to share some of that because I feel like we talk about entrepreneurship a lot and that's who partially who we're targeting with the podcast. But also there are other routes. Not, not everyone needs to have their own business. And I think especially in this current environment, there could be a lot of opportunities for, for people to, you know, weigh the alternative, I guess. And let me ask you on this side of things, are you— do you feel like you made the right decision?

J

JD Yoder 19:29

Yeah, absolutely. For, for the, for the quality of life I wanted, for the things that were important to me. Yeah, it was the right decision. That doesn't mean it was an easy decision. Right, right. It gave me great experience to go from doing that to going to work for a multinational company. It gave me a great perspective. I was kind of in the marketing side of the technical marketing side of that company. Really enjoyed that work, had a great experience there. But that combination really gave me a lot that I could talk to students about when I came back and started teaching.

J

Jason Duff 20:07

Yeah. Tell me about teaching. So like you mentioned earlier that that wasn't really on your radar, but you not only have been a professor for a number of years, but now you're leading and managing a college. Tell me, did that also take a lot of courage to say, I'm going to get in front of 20, 30, 40, 100 students and be lecturing to them?

J

JD Yoder 20:36

Yeah. I think I always tell people to be careful about asking me for career advice because I've changed jobs basically twice, and both times I took a big pay cut. Going from being an entrepreneur to to working in a bigger company and then going from industry to academia, you don't do it for financial reasons, right? But I got to the point in my career where I really did like the work, but I was feeling like something more focused on, on helping people directly where I see them every day and can see them grow got more and more attractive to me. And at a certain point, I just felt like I had to take the plunge and was so really blessed to have multiple offers to do that. And very excited that I ended up at Ohio Northern to do that. But yeah, it's a— it was a very different kind of thing. It was dusting off skills I hadn't used in several years. Right. And even after teaching a long time, the first time you go in front of a new class of students that you don't know, there's still a little bit of butterflies. Right. So, and, you know, you mentioned the leadership. I've been fortunate that when I've been ready for leadership opportunities at Ohio Northern, they've come along. So I spent about 10 years as department chair. And now I'm starting year 8 as dean. And boy, that entrepreneurial background is a huge help if you want to go be a leader in a different kind of organization as well, right? So you, you understand the finances better than a lot of folks do, for example, if you've got that entrepreneurial background.

J

Jason Duff 22:09

In your opinion today, what are the kind of qualities that you look for in a professor and the kind of skills that they need to engage with the students that you see today?

J

JD Yoder 22:25

So you and I have talked a little bit about the importance of culture, right? So to me, the number one thing I'm looking for is do these people value the same things that our organization values, right? And for the College of Engineering at Ohio Northern, that's about personal relationships with students and students having good relationships with each other. But also providing kind of big-time opportunities in that small school setting. And if people are excited about those things, um, it's going to work out, right? I'm much more interested in that than where they went to school or what their GPA was, right? If, if they're aligned with what we value and they're willing to kind of pour their hearts into that, it's going to work out well.

J

Jason Duff 23:11

Yeah. And, you know, there's a lot of criticism in the marketplace right now amongst the cost of education. You know, I saw a chart kind of in the last 10 years is that the, you know, the price of a college degree has outpaced almost every other metric out there. How, when you think about leading the engineering school, what kind of responsibilities do you think universities have to address that?

J

JD Yoder 23:43

I have a long answer on this.

J

Jason Duff 23:45

I figured it'd be a popular topic.

J**JD Yoder** 23:47

So the first thing I need to do is push back a little on that public perception, right? Because while tuition, and especially tuition, has gone up quite a bit, universities have also worked very hard to grow their scholarship and financial aid options, right? So if you look at private education in the U.S. over the last 20 years, the real out-of-pocket cost is flat or down in the United States, right? That's not— it's not a story that gets told very much, right? So, yes, the sticker price is going up. But for anybody out there who's thinking about sending their kids to college, make sure you fill out the FAFSA. And don't make those decisions until you see what the real cost to you is going to be. Now, having said that, I do think everybody in higher ed has a significant responsibility to make sure that we're providing return on investment, right? I think there are a lot of reasons to go to college besides just your first job. I think it's a, it's a great place to grow together, to expand what you, what you're interested in, in addition to learning the skills that you're going to need for that first job. But you do need to be able to get that first job. And I mean, I'm proud to work at a place that's got one of the roughly top 100 return on investment in the country, always in the top 2 in the state. So I think we do have to own that. We do have to provide value, just like I was talking about with entrepreneurially minded engineers who need to create value, right? Universities absolutely owe it to their students and their alumni to create value. The last thing I'll say is the, the wage gap between college graduates and non-college graduates is larger today than it's ever been, right? College is still an incredible investment, um, on average, right? There are cases where it doesn't work out. There are some schools that are better at it than others. But that often doesn't match what people are hearing, right? As an investment, it's still an amazing investment.

J**Jason Duff** 25:59

Well, and I think it's thinking about the business model and the generality of looking at the whole industry. And this is a big credit to you and your leadership and the work that's being done at Ohio Northern is that you have to differentiate yourself from all the other people that are out there. Not only in the region, but you mentioned within the scope of engineering or the scope of geographic region or, you know, I know even what's unique about your program and you can maybe help educate the listeners on this, but the program that you lead, the engineering college, doesn't have a graduate program. So you're in another special category. And the university is getting rankings and recognition for your college?

J**JD Yoder** 26:50

Sure. Yeah, we're— we've got a strong program ranked number 23 in the country right now in our category, which, like you said, is without a PhD program. We intentionally don't have graduate programs. It's not that we couldn't start one if we wanted, but I'm a firm believer you have to focus on a small number of things and try to do them exceptionally well in this, in this market. Right. Because you alluded to this, but the reality— people don't always think about this, but absolutely a university is a business. Right? And so you have to differentiate, just like businesses, right? You have to think about who your customer is and make sure that you're providing something to that customer that's of value and, and differentiated from the competition.

J**Jason Duff** 27:33

Well, you mentioned the, uh, the opportunities and the jobs out there, um, and we talk a lot about economic development and different industry trends and, and not only Ohio but also the country. So I guess as for those considering a career in engineering, what kind of trends are you seeing in the current environment, I guess, for employment opportunities in your field?

J**JD Yoder** 27:58

So engineering is, is always an in-demand field, has been for my whole life. Right now it's off the charts in demand. You know, there are thousands. Last time I looked, 6,000 open jobs for engineers just in the state of Ohio. Wow. Right. And that's, that's basically after all of this year's college graduates were placed. Right. Many of our students will come back for their senior year already having a job for after graduation. Wow. We, we have the last several years we've had more companies come to our fall career fair looking for engineers and computer scientists than we have seniors. Right. So there's more than one company for every student. Yeah. So that just gives you a little feel for the market. And that's, that's Ohio Northern. But the market in general is very hot. It's a great time to be going into a technical field. There's a lot of buzz about computer science and there's certainly demand there, but really any engineering field right now.

J**Jason Duff** 29:00

Yeah. And just a quick side note, we had Eric Phillips on as a guest on the podcast from— in Eric's role, He's the Union County Economic Development Director. And I specifically remember him saying they currently have 600 engineering jobs that are unfilled that are available in Union County. That is the county right next to us. And, you know, in that county, it's, it's, you know, part of the Columbus region. You've got companies like Honda, Scotts Miracle-Gro, Nestlé. And it is a corridor where there's a lot of manufacturing, the Transportation Research Center. We've had him, Brett, on as a guest, the CEO there. But if we don't develop and work with our educational partners and produce more engineers, that jams up the whole process with economic development as large.

J**JD Yoder** 29:55

Yeah, absolutely. And it's a systems problem is the way engineers talk about it, right? Because you can't just flip one lever and fix it. We need, we need more young people in middle school and high school who are interested in technical fields. And then we have to get them into, into colleges. And then, then we can start to deal with that workforce gap. But, but it's, it's not like I can fix it. It's not like one company can fix it. It has to be people all over the state working to increase that interest. And then we also need more people in the skilled trades, right? So It has to be an and, not like 4-year versus 2-year. We need more of all of that for Ohio to really thrive as we continue to boom. You know, JobsOhio has done amazing things in bringing more companies in. We have to make sure they're getting the workforce they need.

J**Jason Duff** 30:49

All right, at this time, we're going to take a quick break to hear a word from our sponsors. Big city dining in a small town. Now that's The Syndicate. Join them for fresh steaks, pasta, or seafood for dinner, or stop in for Sunday brunch to experience one of their signature dishes such as chicken and waffles and maybe even pair it with a mimosa flight. Located at 213 South Main Street in downtown Bellefontaine. Tired of gyms not being open when you want to work out? Then check out the region's best 24-hour fitness center, Anytime Fitness, in downtown Bellefontaine. They have all the equipment you need and the best trainers and coaches to help you get in the best shape of your life. It's truly your one-stop shop for fitness. Anytime Fitness is open 24 hours a day, 365 days a year. I had a an opportunity. I have a godson that is a junior that we have started the process with his parents to go on college visits, and he specifically is interested in engineering. And we had a chance to go to Ohio Northern's College of Engineering and take a tour. And what happens to be at the university is one of the newest buildings on campus is the engineering school.. And you walk up to it, it's this beautiful glass building, but when you walk inside, the thing that was so impressive to me and, and us as we've looked at other engineering programs is how open the space feels. And then also there's all of these student labs where, you know, you're mentioning about the trades, there are people in there, you know, doing things with, with 3D printing and building things with concrete and actually, they're not sitting with laptops, like, staring at screens. They're actually using their hands and doing things. And you talked about getting more people involved in engineering education. I imagine that's helpful to have those kind of— those real-life experiences where they can learn the academic sides of things, but then tie it within a lab, the practicum of the real-life reality.

J**JD Yoder** 32:49

Absolutely. I mean, I'm a huge believer in what some people call hands-on learning or career ready learning. You know, you mentioned we don't have a graduate program, and the other part of that is we have students that choose to go to graduate school, but the bulk of the students that come to Ohio Northern are wanting a job, right? So we're a very career-ready kind of focused place. And so yes, if you're a mechanical engineer, you're going to learn how to weld and you're going to learn how to run machinery that people are going to make your designs on, right? Because then you're a better designer. If you're a civil engineer, you're going to learn how to mix concrete. If you're— even if you're a computer science student, right, you're gonna, you're gonna be using the same tools that industry is using today. You're going to be meeting with clients, you're going to be creating front ends, you're not just going to be doing homework problems, right? And that's a central part of who we are at Ohio Northern, not just in engineering, but across the campus to be kind of practice ready. And what that means, you talk about the building, it's, it's a great building. We were so fortunate to have our alumni help help make that possible. That building is twice as big as our previous building. There's only one more classroom, right? So all that extra space is student space for studying, for doing hands-on projects, for doing team, team-based things, because we just think that's so important.

J

Jason Duff 34:13

Yeah, super cool. Well, I heard you guys talking about your shirt here a little bit before we turn on the mic here. Tell me a little bit about what Keen is and in the program?

J

JD Yoder 34:23

Absolutely. So KEEN stands for the Kern Entrepreneurial Engineering Network. Bob Kern was an entrepreneur, started a company called Generac, who some of your listeners might be familiar with. They do standby generators.

J

Jason Duff 34:36

We've had storms in the area here, so we appreciate having those generators around.

J

JD Yoder 34:41

So yeah, and Bob Kern was passionate about engineering and felt like that some engineers that he was hiring didn't have that kind of value creation mindset, that entrepreneurial mindset. And so the foundation that he started started this network of engineering schools. We started with about 12 schools towards the end of 2005. Now it's over 60 schools all over the country, really focused on that, that thing I was talking about earlier, right? Making sure our engineers are curious, that they communicate well, making connections about things they're hearing, but most importantly, that they're focused on creating value, not just solving a problem. Right. I mean, ultimately, engineering gets done for business reasons, not because it's a cool project. Right. And so if you have that focus, you can make a bigger difference in people's lives as an engineer. Very cool.

J

Jason Duff 35:37

Yeah. And just to share, early in my career, I had a chance to fly up there based in in, uh, Wisconsin, right? Or— that's right, Wisconsin. Yeah, so I took a trip up and had a chance to meet with the foundation. And, uh, just like, uh, what JD was saying, they— that family is some of the most giving people in terms of giving back to helping inspire entrepreneurship education even beyond engineering schools. And, and I think that for people that are listening that want to give back and do things Even if it's in a small way in your own community of sharing your knowledge or advice or success, they've done it at a much big level that's impacting. Think about that future generations of engineers. Sometimes with organizations, people get real excited about donating for something to see a physical thing. There's nothing wrong with that. That's really great. But the thing that they're investing in is the mindset and the ideology around it, but, but particularly schools like yours have gotten millions of dollars in grants and support to help with faculty and training and helping students.

J

JD Yoder 36:52

Yeah, I mean, at this point, schools across the country and faculty all over the country have really been impacted by that. And to your, to your point, they were focused early on making changes at scale and changes over a long time frame that they might never see the fruits of. And that's, that's rare for sure.

J

Jason Duff 37:11

Well, we've had a lot of guests on that have talked about this concept of masterminding where it's getting together and sharing best practices and feeling like you're supported or hearing what another entrepreneur or business is doing in another market. And the thing that I noticed looking from the outside in, it appears that with the Keen Network and the work that you're doing, You're doing that in the education and the public side of that.

J

JD Yoder 37:37

Oh, absolutely. And that's the reason it's been successful. Their theory of change is that you can't do that without networks. And we've managed to help kind of co-create a network that is very sharing and open, even though we're competitors. Right. So Ohio State is now part of the network. Toledo is now part of the network. Dayton has been there with us since the beginning. And so, you know, when it comes to an individual high school student, we're competitors. But when it comes back to the system, right, when it comes to actually improving engineering education, we're partners. We all want that. We all want that, that improvement. We all— and that's what makes it exciting is, you know, we get together once a year for a national conference. I'm part of their leadership council that gets together several times a year. And it's just fantastic to be able to be open and talk about not just what works, but what didn't work. Book, right? Because often that's, as you know, that's often where a lot of—

J

Jason Duff 38:31

yeah, there's lots of lessons there, right?

J

JD Yoder 38:33

Yeah.

J

Jason Duff 38:33

Well, and can you maybe speak to that a little bit, uh, for those that are listening that maybe they, they're out of— they've been out of school for some time and, uh, they do want to continue to stay sharp and learn and grow. Um, are there anything that you kind of keep on your radar as an educator to— I know a lot of us, we refer to YouTube. Like, I, I know I do. If there's something I don't know, one of my first things is I go to YouTube and and like type it. And again, you kind of got to sift through it. It's not as curated as it might be. But just, is there any kind of tools or resources for people that, that do want to, you know, keep on their education journey that you found helpful or, or could point to?

J

JD Yoder 39:10

YouTube is really impressive, right? So, so that certainly is a great resource. I, I think in, in today's world, you can really focus in on the thing that you're most interested in. Right. So if what you're interested in is keeping up, if you're an engineer and you're interested in keeping up to date with engineer, there are engineers workshops around the state. We run one of those every year. If, if what you're trying to learn about is AI, there are some good free courses now that you can, you can find online. A lot of those take a lot of initiative, right, that And so I think be realistic about how much time you're willing to put into improving yourself. Yeah. Because like Coursera is a big national platform for online courses. There's, there's a huge percentage of people that start those classes and never finish because it's really high, unfortunately.

J

Jason Duff 40:06

And I'm in that category. Good intentions, right? Yeah. Good intentions.

J

JD Yoder 40:11

And so I think, you know, that's one of the advantages of YouTube is you can do it in bite-sized pieces. But, and there are lots of courses you could take even at local community colleges to stay up to date as well. If, again, if you're willing to be a little more committed than what you're going to find in kind of the bite-sized pieces that YouTube is so good at.

J

Jason Duff 40:31

Yeah. Cool. Thanks for sharing those. Looking forward, what are you most excited for with the engineering program at ONU?

J

JD Yoder 40:38

It's an exciting time. You know, we built that building and it started in 2017. Same year I started as dean. We were about 450 students. This fall we'll be over 700. Wow. So we're, we're growing pretty quickly, not fast enough to meet the needs of the state, so that's why we have to deal with that statewide. But I think people see the value in that career-ready education. They see the return on investment. They see that we're still a place where young people can come and get together and do amazing things. And 4 years later, they're graduating with a great job. And I think there's always going to be a place for that. And I'm excited about what we can bring to students. I'm also excited about the, you know, what's going on in the state with economic development. There's a lot of growth. There's opportunities for young people. So I think it's going to be an exciting decade for sure. Yeah.

J

Jason Duff 41:45

JD, a lot of people are talking about, you know, you mentioned JobsOhio and our state has been very successful in the last few years of winning some really big companies and deals. And everyone, of course, points to and looks to Intel. And you cannot not see new data centers that are popping up from with companies like Facebook and Microsoft. But can you, like, what do you think something like that of reshoring, uh, more of those chip manufacturing, what gets you excited? And then maybe is there anything you're concerned about?

J

JD Yoder 42:20

That's a great question. So, um, are your listeners familiar with reshoring? Do we need to—

J

Jason Duff 42:28

I, I think so. You know, it's that theme of, of things that, you know, are made in China and, and we, we the globalization of, of trying to get cheaper goods that, that, that, that we aren't suffering the environmental impacts that are out there. But that, that pendulum tends to be swinging back.

J

JD Yoder 42:48

There's no question. So, so great. I just wanted to make sure they had that background. And I think, you know, one of the things that happened during COVID is the fragility of our logistics showed up. Right. The supply chain kind of fell apart and that supply chain was built for efficiency, but not resiliency. And we spent lots of engineers and lots of business people spent 30 years doing that. Right.

J

Jason Duff 43:15

The just-in-time manufacturing. Exactly. That was the— if you could achieve that, that's the pinnacle.

J

JD Yoder 43:21

Right. Right. And not just manufacturing. Right. But, you know, FedEx and DHL logistics being able to bring things to you the next day if you needed them. And we kind of really hammered that efficiency for a while. And then it showed— COVID kind of highlighted the, the weaknesses, right, the lack of resiliency. And so companies and countries are trying now to find the balance of that resiliency and efficiency. And I think that's going to take time to figure out. But I think that's absolutely an exciting time. And I think it's a good thing for the US and a good thing for the heartland here, which is still the manufacturing capital of the US. I think that's absolutely an exciting time. It's also a challenging time, right? Because we've got fewer students in high school than we've had for years, for decades. And population growth in the US just is not growing at a rate that we're used to. And so these companies are going to have to figure out how to increase production while at the same time dealing with a smaller workforce. And that's going to be— there are lots of good problems for engineers to solve over the decade to come.

J

Jason Duff 44:33

The, you know, that's kind of one theme with, with a company like Intel. The other thing that has been very important for the Midwest has been automotive manufacturing. We have been known in this region, in our part of the country, to manufacture cars and make the parts that go into cars. And there's a pretty big shift right now happening of moving from traditional combustion gas engines to EVs. And we're seeing massive investments with companies like Honda making that shift. But if I take off that hat and put on my business hat, there's also a lot of data that's pointing to problems with consumers that have bought EVs. And questions if they'll continue to buy EVs. Any kind of, you know, looking into the crystal ball as those things are changing? He's loving the look that I'm getting.

J

JD Yoder 45:31

I'm not going to claim to be good at predicting the future. Right. But I think you certainly are seeing a trend towards not just more EVs, but more hybrids, which is maybe quieter. But there's a lot of growth in the hybrid market right now. Which technologically has a lot of the same pieces as an EV. And I think with any new technology, right, there's the early adopters. And that—

J

Jason Duff 45:58

what's that curve? Professor, help me here. There's a product lifecycle curve?

J

JD Yoder 46:03

Yes.

J

Jason Duff 46:03

Okay.

J

JD Yoder 46:04

Well done.

J

Jason Duff 46:04

Well done. You passed.

J

JD Yoder 46:05

Yes.

J

Jason Duff 46:06

Okay.

J

JD Yoder 46:07

And so we are definitely in the early part of that. Right? And yes, it's true that we don't have all the charging infrastructure yet. We don't have everything figured out. I remind people I'm an automotive guy. That's my background. You know, when the first combustion engine cars were out there, it's not like there was a gas station at every corner.

J

Jason Duff 46:26

True.

J

JD Yoder 46:26

Right, right. The demand had to build up and then the services were there and there was lots of bumpiness in there. Right. We just don't think about that because that was more than 100 years ago. So for in our lifetime. Right. There's been gas everywhere you need it, right? And I think that will come. But will the technology have to get better? Will the services have to get better before we get to that adoption curve where kind of everybody's doing it? Absolutely. There's going to be improvements happening there. And I personally believe there will always be a mix of different kinds of cars out there. I don't think you'll, you'll see 100% EV anytime real soon, if ever. I think just like with universities, right, we have a big range of menu kind of that you can choose.

J

Jason Duff 47:19

And how thankful are we to have that as consumers and as the market? You get to choose. And I agree, we want more choices.

J

JD Yoder 47:28

And so, yeah, so I mean, I think that's one of the reasons we've got one of the best, if not the best higher education system in the world, is we've got that range of options. And so I think there will always be a range of options available, but there's no question that the trend is moving towards the advantages of electric, whether it's in a hybrid or a pure electric.

J

Jason Duff 47:48

So the other question I have— I'm leaving these good ones, these hard ones to the end— is I always prided myself as one of the skills I have is to attend a meeting and take pretty good notes and send out an email recap. And that was until I turned on my Copilot with my Microsoft 365 account that was listening to our meeting. And then it spit out a recap that was not only better than what I could produce spending 45 minutes of time, but it actually highlighted a list of things that people committed to, including myself, to do as we prepared for the next meeting. So there is no question, you know, Copilot's a feature of AI with, with Microsoft. And of course, ChatGPT is in the news and Bing AI and all the, all the different things that are evolving. But I'm going to ask my expert here that's preparing future engineers, tell me about what you think AI is, is the pros and the positives is going to be doing, particularly for our small businesses and maybe people that are listening that, that could utilize some of those tools. And any ways that we should be thinking about it going into that education piece that we could be learning more about that?

J

JD Yoder 49:05

Yeah, it's a— there's a sea change coming, right? And this is not going to go away. And I think people need to educate themselves at least a little bit and understand both the positives and the potential pitfalls. It's very easy to start using some of these tools and they have a lot of benefits, as you just highlighted, right? Those kinds of, of what I would call routine tasks. We talked about some of the editing for your podcast. Yeah, right.

J

Jason Duff 49:36

So it did hurt my ego a little bit.

J

JD Yoder 49:38

So some of— and yeah, so, so some of those things it is just going to do really well and there are going to be fewer and fewer people that do that. And that's just the way technology works, right? It will open up other kinds of opportunities. There are other things it's not very good at. So it's not very good today at solving engineering problems, right? Might it get better? Sure. And certain kinds of problems it can already. A large language model, which is what ChatGPT is, works by having a huge training set. And then in response to a question, one word at a time, it thinks about what's the most likely next word to give an answer, right? So it can't tell you at the end of the sentence if it thinks the whole sentence is right, right? So we have to be careful not to trust these too much when we're getting answers to questions. That'd be one piece of caution. The other is about data, right? So most of these models, as you're typing data into them, are then using that data for future training. Right. So I know nobody reads all the fine print when you start using a new tool, but keep in mind that anything that you type in there, they now have access to. Mm-hmm. And so for, for people in my field, things like student records, we certainly aren't going to be putting student stuff self into an AI model anytime soon. Hospitals have very similar kinds of concerns, right? So we do have to think about where the guardrails should be in terms of which data we give access to these large language models.

J

Jason Duff 51:28

Great. Yeah, I feel like we could sit around all day and like, you, you did hold off all the hard questions to the very end there, but all good things.

J

JD Yoder 51:37

Yeah, yeah, there's a lot going on with AI, but I think, I think, uh, anybody who tells you they know exactly where it's going is, is lying to you. It's not being truthful.

J

Jason Duff 51:45

Yeah. Um, very cool. Well, thank you for sharing your perspective on that. I feel like it's fun to, to have someone, um, of your, your stature and just your experience speak to some of these topics. So, uh, thank you for that. I'm going to kind of move us into, uh, more of a fun segment here of our show, uh, just rapid-fire Q&A. Now these are the real tough questions. These the real hard questions here. Number 1 is, are you a Coke or a Pepsi guy?

J

JD Yoder 52:09

Coke.

J

Jason Duff 52:10

All right. Yeah, I think that probably moves Coke now to 80% of our guests. Which is the right way.

J

JD Yoder 52:17

I'm a Coke person.

J

Jason Duff 52:18

I just like to say that. Great. Question number 2 is, if you had to choose a career completely unrelated to the work you are doing now, what would it be?

J

JD Yoder 52:29

That is a hard one. Completely unrelated. I think I would go back and start a small business again. Really? Yeah.

J

Jason Duff 52:38

I love that. Yeah, it's cool. Keep it small, or would you like to, like, grow it up?

J

JD Yoder 52:43

Probably small.

J

Jason Duff 52:44

Yeah. Yeah, that's great. And then the last one here is, what is your perfect vacation?

J **JD Yoder** 52:54

I like beach. Okay.

J **Jason Duff** 52:56

Beach, beach.

J **JD Yoder** 52:57

So Hawaii is beautiful. Probably. I've only been there a couple of times, so probably it'd be the beaches in Hawaii.

J **Jason Duff** 53:04

Yeah, never been. It's on the bucket list. Same.

J **JD Yoder** 53:06

Same.

J **Jason Duff** 53:07

We're supposed to go. And then someone in my family caught COVID right before we're supposed to go. And they were very strict during COVID Didn't want to get stuck on the island. Right. Yeah, exactly.

J **JD Yoder** 53:16

Because.

J **Jason Duff** 53:16

Yeah. Anyway, maybe someday. Great. A few closing questions here for you. And the first one is, what is one professional development resource that was impactful impactful for you along your professional journey?

J **JD Yoder** 53:29

Great question. I think recently, I love the book Think Again by Adam Grant. And I think it's because it provides a— in a polarized time, right, it provides us an opportunity to fight our way through that. He talks about treating our the things we believe as experiments, right? And realizing that some of the things we believe are wrong, right? Certainly some percentage of the things I believe are wrong. Sure. And so why not talk to other people and view it as an experiment where you're both trying to figure out what the right thing is instead of defending that belief at the cost of getting upset about people who think differently than they do?

J **Jason Duff** 54:12

Well, I feel like our world could use a dose of that. Yeah, that's a— I think that's a new one. So thank you for sharing that. And then where can people learn about more about the engineering program at ONU and the work that you were doing there?

J

JD Yoder 54:25

Yeah, so onu.edu is a great website, but you're also more than welcome to email me directly. That's j-yoder@onu.edu. So j-yoder@onu.edu. And I'd love to answer any questions your listeners might have. Great.

J

Jason Duff 54:43

About AI or EVs or any of the things, right?

J

JD Yoder 54:47

I do have some faculty who are experts in AI, so I can point them— Yeah, there you go. Rather than trying to answer those questions off the top of my head.

J

Jason Duff 54:55

Yeah, awesome. I will give the plug, and it's kind of a shameless plug, but it comes from a very authentic place. If you heard and listened to JD today, the type of mentorship and leadership and culture that he has built within his college, you feel it when you're there. And if you talk to a recent alum,, or a current student, um, the, the program doesn't have to sell itself because, uh, it, they, they're doing something special there. Um, but I, I think part of what, what the secret sauce is, if we wanna talk about it, is the background that JD has had, um, in his journey of being an entrepreneur and owning a small business. And I think the failures or, or mistakes that he's made, how he's incorporated that into his everyday life. And I think there's a lot of really great nuggets that no matter what career path you're in and listening today, you can take that. The other thing that I take away is I would probably have always identified in the entrepreneurship, entrepreneurship spectrum as a more right-brained kind of person. The creative, the theater, the, those aspects. If, if you're like that, what I found is really good to find someone that is more of those left-brained system process people. And in our team, you know, I think of Cameron, who's our accountant. He is very much about, well, it's not just about the numbers, it's like what software and what is the flow of the way that we're going to handle this so that it's automated. And we make so many mistakes. Me being a right-brained kind of entrepreneur, it's like I can do all the things and then if I am not there, you know, then there's no system, there's no procedure. Right. And that's why we need engineers and those left-brained thinkers in the entrepreneurship ecosystem, because that, that's a gift. That's a special skill. So thanks for sharing that. Thank you for preparing the next generation of engineers and entrepreneurs and people that are going to solve problems.

J

JD Yoder 57:06

Thank you. And I'll just build on that a little bit. I mean, I think, first, thank you for the kind words. A big part of that is, you know, any organization is about a team. It's not certainly not just me. And I've got an amazing team there. And I think to your point on, on entrepreneurs, you know, organizations, especially as you start to grow, execution is just critical. Right? And I think, um, that's a place that sometimes gets missed. And ultimately, the, the organizations that survive long-term and, and, uh, and thrive out-execute everybody else, right? So it's not just about— it's not just about the idea, it's not just about the product. You, you have to execute the business processes and do that as well or better than your competition.



Jason Duff 57:55

Yeah, well said. Thank you, JD.



JD Yoder 57:57

Thank you.



Ethan DeLeon 57:59

Thanks for tuning in on this episode of the Small Nation Podcast.



Ethan DeLeon 58:01

We hope that conversation proved valuable to you, and if you enjoyed it, be sure to share the episode and follow the show on Spotify, Apple Podcasts, or your favorite podcasting platform. You can also subscribe to the Small Nation YouTube channel if you prefer to watch your episodes. Follow Small Nation on social media and we'll see you in the next episode.