

Michael Porzio:  
Advanced Manufacturing RTCC Fall Advisory Board Meeting

Michael Porzio:  
One second, and I will, yeah,

Derek Geno:  
People that get on this call, this could be the start of something really, really good for you. Yeah, I know it just seems to be. It's a long story, but there seems to be the the previous faculty member here had a lot of connections, but they ended up leaving and it just severed all those connections.

Michael Porzio:  
Hello. Hi Gene, Derek is on the phone.

Gene Torvend:  
Oh, good. Hey Derek.

Michael Porzio  
All right, let's move through this, and I want to hold you guys up. All right, so I'm Michael Porzio. I'm the advanced manufacturer at RTCC. Thank you the two of you for joining for the Advisory Board meeting. I've already talked to, and I could not get in contact with Matt McKinley from Hypertherm and Jay West. They couldn't get on the call today. So it's you two. We're going to go over what we do in the classroom quickly, some of the lesson materials and the equipment we have on hand. But first, could both of you introduce yourself? Derek, you can go first.

Okay, all right. Derek, do you want to introduce yourself?

Derek Geno:  
Yes. My name is Derek Geno.  
As far as 3d printing, additive manufacturing, I worked with massive dimension for a little over a year, between 2022 and 2023 and that was kind of my, my first position into large scale additive manufacturing. And then, prior to that, I worked for the rest of my career as a manufacturer's representative out west for a large dental company working specifically with orthodontics.

Michael Porzio:  
Yep.

Derek Geno:  
Cool. Thank you. I attended Vermont State University Johnson with a degree in hotel hospitality management, so pretty far apart from three to printing. Oh, well, everything pulls you into this industry at some point. All right.

Michael Porzio:  
Gene, would you like to go?

Thanks,  
all right, just let me hear a brief summary of your past and your experiences in manufacturing.

Gene Torvend:

Well, thank you. My name is Gene Torvend, and my background is from California and went to California Polytechnic with a degree in aerospace engineering and mathematics, and I was on the General Electric manufacturing program for three years, and became really oriented to manufacturing.

Worked at GE for a while. Then I was at TRW, running a plant for them. And then from there, I was, at times fiber communications as VP of Operations, and we set up one of the first fiber optic manufacturing, glass and cable operations in the United States for communications cable, and that was exciting, all brand new technology. From there, I worked for a Swiss company, and we bought Champlain Cable in Vermont. That's how I ended up in Vermont. And so anyway, I ran that for seven years, and we integrated all the, a lot of the Swiss products in Connect connector systems and fiber optics and a lot a lot of different product lines into their their company. Anyway, after that, I ended up buying my own company, plastic technologies of Vermont, and we had four plants, and I had two partners, and we grew the business from when we bought it, it was doing about 500,000 and we grew it to 26 million, and I sold it five years ago.

And actually six years ago, and so then I kind of  
that was really

a very successful endeavor. And that was, it was extrusion, ball molding, and we were really on the leading edge of that technology at that point in time, and learning a variety of engineered plastics. So anyway, then  
retire, you expire.

And that's when I met

my good friend, Michael. And at that point in time,  
we hooked up with Triax, and for me, that was very exciting, because the technology was really leading edge. So again, we were doing extrusion systems on a miniature basis, and we were making a variety of filaments for the additive manufacturing segment. And so what was pretty exciting is we got an opportunity to expand it, really, into a lot of different types of products and into different customer areas. And of course, Michael, who is a good friend, was really one of the leading technologists in the company, and was really one of the main drivers for a lot of our new products. And they were very, very exciting. We we ended up with robotic systems on robots who we had relationships and partnerships with a variety of robotic manufacturers like ABB and Stubby and a lot of the major manufacturers in the world, and we had quite a variety of customers, and it was very exciting. It was new technology, new customers and an exciting business. And I got to work with on the technical side. I was a

director of strategic planning and new business development, and so I got to work closely with Michael and Derek, who was director of sales, and we got to do a lot together. And Michael really honored that you invited me to be part of your discussion. Thank you.

Michael Porzio:

Thank you. I just realized on here that, once again, let me push something and hopefully this makes it better. Did that work?

All right, hey, are you? Can you both reply to me?

All right. Gene you there?

All right, I just, I just adjusted how this the meeting call work. Okay, cool. I think this would work even better. All right, thank you for both of you introducing yourselves. Alright, so in this class, advanced manufacturing, we study industrial design and manufacturing, both from additive manufacturing. We do welding, we do machining, we do 3d printing. We offer what are called IRCs, their licensures, so that the students, when they graduate, they can go out into the workforce and have license to show that they are qualified in the skills that they've practiced here currently, as of 2024 the two licensures that the students are progressing towards are certification and Solidworks associate, and they are getting their IRCs and gas tungsten arc welding for plate. So the two of you, if you can think for next year going forward, is there any licenses or skill sets that you think our students would be more more in tune with the manufacturing world, like anything that you think that would be more helpful for them To be trained in for getting jobs?

Gene Torvend:

I think that think that they have a huge opportunity, because Manufacturing potential worldwide is extraordinarily exponential. Yep, And the bottom line is, there's a real variety of

potential processes and materials that are exciting. So not only are you building an additive manufacturing and extrusion with a wide variety of engineered materials and plastics and polymers, but also the mounds expanded into metals, into a whole variety of materials, and the metal side of it, I mean, that involves really kind of a basic welding, kind of a process, a lot of the potential and capabilities and.

You guys have there could be very appropriate. Have to go back. You'd have to go and analyze the specific processes and what have you. But if you look at the overall industry, there are potential processes and capabilities available now that you can look at and analyze. But then you've got the capability to move above and beyond that and find new capabilities that could provide really great opportunities. And then, if they want to fall back into the the the polymer side of it, I mean, that's just expanding dramatically. And, you know, Michael, you know that dead knots on that's what we did. And we were running everything from PLA to peak, which was a very exotic polymer, and all the processes to go with it. So I I think for your school and your curriculum, I think they need an expanded additive manufacturing program. And the potential and capability of it is really exciting, the technology, the processes, the products are exciting, everything from from votes to close, and I think there could be some, really, some great coursework. And you know, Michael, you're right at the center of it, yeah, thank you.

Michael Porzio:

Yeah, I agree. Definitely moving in that direction. What's your take? Derek, so, with massive dimensions, dimension, everything was very polymer centric. And when I went to, I went to the additive manufacturing conference down in Brooklyn, it was almost a year ago today. Actually, it was like a year ago in February. It and they had a panel question about one moment,

Michael Porzio:

One second, can you Mitch? Mitch, I'm in a meeting right now. Can you just sorry?

Michael Porzio:

Sorry. Go on. Derek,

Derek Geno:

so this was the added manufacturing conference in New York City that was on like it was early February of 2023 so anyway, they had a panel discussion. And there was people from veil of there was fuel and COVID with their their desktop metal, digital metal. There was Lincoln Electric that had a huge presence, and they did it at Fabtech, and also the one that I went to in Frankfurt, but so I got kind of a case of FOMO, like we were really missing out,

Michael Porzio:

Right? There's so many different directions.

Derek Geno:

Well, it was metal. Metal, metal. Everybody was talking about metal is really where it's at, whether it's the desktop metal at Hewlett Packard or like companies like Lincoln Electric would have a six axis robot printing on their nuclear warship. US enterprise to print parts without having to go port, right? So I was just, I felt like we were really mixing the boat. But so I would have to say that friends talking about nitrite are by 3d printed hydro like, basically fluids moving through

Michael Porzio:

it right, manifolds, things that'd be very difficult to machine.

Derek Geno:

They talked

About direct energy deposition. Direct energy. Definition, laser and blown powder. These things all sound very, very expensive for classroom environment, right?

Michael Porzio:

But it may be possible at smaller scales. I mean, we the whole point of these meetings is to

discuss potentials for budget directions that are, you know, equipping our students for our future. We don't want them to become behind the times, right? And they're not marketable to potential employers, so it is important that the school is prepared to train them on the future wave of technologies. So let's segment that into the next section, which is the the tools and equipment we have here. We recently just got two bamboo labs, P, 1s, printers, and we have an Ultimaker, s5, for added manufacturing for programs. We have SolidWorks and fusion. 360 on CAD for milling operations or subtractive machining. We have manual vertical Mills as well as manual lathes. We also have. Multi access CNC lathes and a CNC mill Hoss in the classroom, which is pretty cool. But what besides those equipment? Are you thinking something along lines of like the cheapest, most affordable metal, like centered or metal additive manufacturing printer as well would be useful?

Gene Torvend:

You think next year, one thing you should consider is, one of the areas that we were moving into rather aggressively, is the industry needs the potential for cost reductions, and that's one of the things that's driving it on a robotic system, you can set it up for additive

Derek Geno:

manufacturing, and then simultaneously with that, you can set it up with the subtractive capability. All right, combining the two assets at once. That's right, you look at combining those so you can cut out labor, you can cut you can reduce your material cost, and it's an opportunity to really set a new direction in the additive manufacturing field, and that right now is just starting to take off.

Gene Torvend:

Then I guess just one other point I'd like to make is, I think, interest, your school. I really do think that you want to kind of brainstorm the total additive market and potential capability, and kind of look at what direction specifically is growing the fastest, and it makes the most sense to focus on and like Derek said, you know, when you go to these shows, really, what you see is you see the metal side of it, but, but, you know, I mean, Michael, you and I were walked the floors in these shows together, and it's just growing so rapidly, you really need to brainstorm it to set your direction right, right, because there's so many directions to go in. But, yeah, that's a good point.

Derek Geno:

So, so added manufacturing that also has joint subtractive on it, so like milling post milling operations on 3d printed parts, etc. Yeah, that's true. That would be that is probably the direction that manufacturing is heading in. Okay? We struggled with that seemed to be, what comes first? Do we present the solution? Like this is a question that you that you can pose to your students. Do what comes first? Do we propose the solution and then offer it to the world, or do we to the world? Do we listen to the customer and then we should see what they're probably Yeah, but it's such a new it's still new. It's almost like the customers don't really know what's best.

Michael Porzio:

for them solutions, but then you'll find out that that's not really the right solution for them to begin with. Right? The industry has momentum, and it's difficult to stare it in a different direction, even if that direction is potentially easier, because it may be easier to physically do, physically manufacture, cheaper to manufacture, but it may be more challenging to set up and divert their design on how they manufacture, right? And they may not be how their assembly lines are set up or how their designers are set up to utilize these machines. So that may be a little more challenging about what how where to invest your money, and if we're talking about metal, I was thinking about the kind of thing that could be easily implemented on a smaller Robot. What either a gantry or a rope. Probably it's like, yeah, it's like MIG welding wire, but you're using that to add that's a potential, and it's probably more affordable than like, centered powder. Were you gonna say Gene?

Okay,

Michael Porzio:

yeah, that makes sense. The wind of all these exotic sounding new technologies that could be something that could be within, within budget for a school, yep, to be able to get your students exposure to the metal. Yeah, they have the ability to do subtractive manufacturing with the CNC and welding. But of course, the industry is very potentially moving in a more automated direction. It's one of the reasons we're trying to prepare them more with CAD because if people are leaving the shops, they may end up being the ones that are programming the machines instead. Right?

Derek Geno:

On advanced manufacturing, some of the customers we talked to were trying to find a way to reduce their costs. Like that company that was that was doing the RV windows, and it was they had 1000s of people that were doing manual operations, the potential of reducing the labor dramatically, robotic and additive manufacturing would make a monumental difference in their business when you kind of sit back and you look at that, that was one particular customer, but if you look at the total spectrum of capability and potential out there, man, oh, man. I mean, these guys ought to be learning, because driven by cat, as you know, learning the capabilities and techniques to be able to go out and help these customers do that, yep, and remember that,

Michael Porzio:

yeah, that was big they were. Yeah, that's going back. So yeah, assembly lines and and the reality is, you know, we're not in this school. It's not so much the the moral efficacies of whether or not replacing humans with machines is up to us to decide. It's more like we're preparing for that future, right? Like that's not in our hands. We're not selling this equipment. We're just preparing because companies are going to be moving this direction. And how do we, yeah, get our students ready for that reality? Yep, right? Anyways, I mean,

Derek Geno:

Michael, I should give you a list

of some of the companies that we did for it is just all over the map, as far as their their use cases, from how companies, aerospace companies, then we have Louis Vuitton, which came out of nowhere. You found them, Gene and then, then we had this, this company that does, like carnival rides out in in the Midwest. It was in Indiana, I think, where they wanted, they wanted to 3d print, you know, like the, like, a horses, a horse, you know, there was the one in Florida, blue hippo that was doing, you know, the big wizard and things like that.

I mean, it was, and then, of course, you've got the M-DAC for education, you know, all over the country. And then, you know, in addition to that,

Gene Torvend:

it's funny. The other day, Barb and I were in dicks, and we were looking at, I was looking at sports shoes,

and I would and I was thinking about how that technology has changed, and that has gone 3d additive manufacturing. And, you know, there's, there's sports shoes companies now that are making soles in the shoes. I mean, it's a huge, huge, huge market, and they're using a wide variety of different types of polymers in their soles and in these types of running shoes and to the customers that Derek was just talking about. You know, a couple of these companies are worldwide, and it's just exploding, yeah,

and we were right in the forefront of it. And I don't know where they are now, but I think they should they're probably still there. I would think so, yeah.

I just wonder what the appetite is going to be for for polymers in five years or 10 years, yep, yep, yep,

Derek Geno:

yep, that's a good point. I mean, when you talk about all the pressures now on polymers and and the issues with it from a safety perspective, and outgassing and etc, and contamination. You know, you see the, see these huge myths gathering up all the plastic we just had on the news, on the news last week, they're talking about venison, because it's deer season right now they're talking about finding,

Michael Porzio:

oh, God, is it? What's the is it P, E, F,

Derek Geno:

going to be a slow, a

slow race to get out of anything related to plastics. Michael, I think that you have the opportunity to present to your board on how to expand the school's curriculum, especially because there's you.

Such a variety of materials, and some of them are really engineered to be standing behind. Yep, I think

they should expand their curriculum in that area. I don't know how many schools really focus on that. I don't think many. It's you guys.

Michael Porzio:

Could be leader. It would be great. I know one of the things that I've mentioned to the higher up here is our IRCs, the certifications and licensures. There are currently no additive manufacturing licensures. There is not one for additive metal, plastic.

There's no licenses we can give the students involving additive manufacturing, like I can't train the students on 3d printers and give them a license for that. That's not something anyone has available for in Vermont.

Derek Geno:

And why

don't you have a curriculum for additive manufacturing and you can set it up, the School would be the leader in the country. You guys ended up being the Harvard talk about that, because I agree.

There's a person, there's a person who comes to mind Gene when you say that, Mark Parsons at New Bedford research and robotics, which is not a far drive

Michael Porzio:

for a day trip. If you could maybe set something up, we can do field trips like that. Yeah, yeah. If you could put something like that in your budget. I I don't want to speak for Mark, but Mark is a teacher. He just, that's just his nature. He just loves being around, you know, young, you know, future entrepreneurs or whatever.

Derek Geno:

But I think he's a very generous person when it comes to that kind of thing. I think he would be all about it, and he's the kind of guy that would love to put that on his social media. So it would be helping him to

Gene Torvend:

huge idea, you know, Michael, you could present that to your board and recommend having them come up and give the present day, and if you talked about expanding it into a curriculum for the school, well, he could really provide some help and leadership on how to go about doing that.

Michael Porzio:

Yeah, I like that. I'll have to reach out and talk to him, because we can have class presenters and speakers. So I would definitely like to invite him here, or even go down there myself with the class.

Derek Geno:

Yeah, consider him a friend. I bet Gene

Jim probably wouldn't mind being on one of these calls. He always

Michael Porzio:

Yeah, it's a great idea. How about we get Jim? I bet he would love to be on something like this. I'll get him to be on the board for the next call.

Gene Torvend:

All right. Sounds good.

Michael Porzio:

Very exciting. Thank you for both of you for all your input.

Derek Geno:

Sure thing I can get you a list of their names.

Michael Porzio 28:22

I so yeah, that would be excellent. I would appreciate that resource.

Derek Geno:

Cool.

Michael Porzio

All right, if both of you are good, I've gone through all the questions I needed to ask you. Thank you for taking time out of your busy days to be part of this. There will be another one of these calls later on, probably towards the end of the school year, and yeah, I look forward to talking to both you for then too

will do Thank you. Thank you, both of you. Have a good one. Bye.