

Layered – Episode 2



TALI ROSMAN

Todd Grimm [00:00:05]

Welcome to layered the business of additive manufacturing brought you by Xerox. I'm Todd Grimm, a 31 year veteran in the additive manufacturing industry. The future of additive manufacturing is promising and exciting yet many challenges lie ahead. Our goal is to be your source for reliable information, backed by data and presented by the experts. We address some of the major issues manufacturers are facing with additive manufacturing solutions and how they are approaching adoption of AM technology in their own workflows and industries.

Through conversations with industry experts, we discuss the complexity of offerings, technology compatibility and best practices in integration, among other topics. We're here to navigate with you these big questions as we talk about the business of additive manufacturing. In this episode, we'll navigate by looking back on the activities in the metal additive manufacturing space in 2021. And since looking in the rearview mirror doesn't help us see the road ahead. I'll do my best to carry that information into 2022 and beyond. In a few minutes, Tali Rosman, general manager of Xerox, Additive Manufacturing will be joining me to share her thoughts on 2021 and the future. But first, I want to set the stage. I will be discussing trends, not individual companies or products, to prepare. I poured through an entire year of news that I have archived. From that, a very few high level things jumped out at me. First, progress has happened and will continue to happen. But in 2021, it wasn't the jaw dropping breakthroughs. Instead, we had a steady march forward to improve, resolve, overcome and augment. Second, the progress may be hard to recognize because it was multifaceted. Really a collection of sub trends spanning hardware, software, materials and process. Some may look at 2021 as an eh year with little in the groundbreaking news category, not me. It's a sign of maturity and an indicator that the additive manufacturing industry is working to satisfy your needs and your requirements, which can occur at a very fundamental level. The third point is what I think is the word of the year, and that is SPAC-special purpose acquisition companies yielded an abundance of additive manufacturing companies that went public, which fueled my fourth item mergers and acquisitions. Flush with cash, these companies often went on buying sprees. Now there are many reasons to do so. But the one that resonates for me is the need to diversify. Companies have discovered that being a one trick pony is not ideal. Customers need

Layered – Episode 2



TALI ROSMAN

multiple technologies and multiple solutions to address their applications. Acquisitions were also rampant throughout the industry for companies without those IPOs. This industry is so fragmented that companies know that they need size to stay visible, relevant and viable. And my fifth item is speculation on 2022 and beyond. I believe the merger and acquisition activity will continue and will also be followed by some business failures because this industry will continue to contract, not consolidate, but contract around a handful of key players. And this will be not as a total industry or metal additive manufacturing, but instead, it'll be along a best in class for specific groupings, be them technologies, price points, industries or applications served. The six item is partnerships, and this is something really to celebrate the news for 2021 was filled with announcements of partnerships and collaborations. This, in my mind is critical because there are so many aspects to making additive manufacturing work that it's unlikely that a single company can have core competencies in all areas in all disciplines. My seventh and final item is production. Nearly everything written was from a series production angle in 2021 saw many references to at scale. Production at scale, meaning high annual part counts was the new in vogue phrase. And of course, supply chain was a common angle for that production application. This will certainly continue over the coming years. My opinion is that production applications, generally speaking, are still out of reach for many companies and many products. The intent and initiative are welcome, but the context of being an at scale production system may be a bit premature in a broad context. As we march forward with progress on all fronts, it will become viable for more companies and that is the future I think we will all welcome. But in the meantime, don't lose sight of prototypes, tooling, bridge to production and spares. I'll come back to add some details to these high level points after we hear from Tali Roseman and what her thoughts are on what 2021 held and what 2022 promises. We've already said that she's general manager for Xerox Additive Manufacturing. What that means is she leads the digital manufacturing and additive manufacturing efforts at Xerox, and she's got a history of over a decade in the additive manufacturing space, playing roles in strategy, corporate development and product management. And Tali I believe that included companies such as Stratasys and a software company called Nice. Is that correct? Yeah, that's correct. Excellent. Well, with that Tali, let me throw a lob a big question out to you. 2021

Layered – Episode 2



TALI ROSMAN

What caught your eye what caught your attention? What do you think is important for people to refocus on from the year that's gone by?

Tali Rosman [00:06:03]

So for me, the biggest thing in 2021, as we're talking to customers and seeing what happens in the market is the understanding of how additive manufacturing can help supply chain resiliency. So you think about it two years ago on the news, nobody talked about supply chain and all of a sudden in the last year, whether if it's COVID, whether it's the Suez Canal supply chain became all the buzz and a lot of companies realized they need to build the flexibility and agility into the supply chain. And then the next step was additive manufacturing can help. And all of a sudden, these discussions became much easier to get going.

Todd Grimm [00:06:45]

Well, you said how additive manufacturing plays into supply chain resiliency. So let me interpret that as it's not a drop in solution as it exists in, let's say, in early 2021. There are things to be done. Is that a correct take away from additive as a supply chain alternative?

Tali Rosman [00:07:05]

Absolutely, and I think this is the point where a lot of customers have had disappointments from additive manufacturing in the past, if you will, is that they thought exactly what you're saying, Oh, I'll just buy a printer, plug it in and it'll start cranking out parts on demand, not realizing that actually, there's a whole lot that goes around that both on the hardware side as well as on the workflow side.

Todd Grimm [00:07:30]

Absolutely. Well, in 2021, in the supply chain context and making additive work as a solution, were there any significant transactions that occurred in the industry that better enabled additive to respond to a customer needs are? Or is it one just of opening eyes to? You've got some work to do to get there.

Tali Rosman [00:07:54]

So I think the first thing was really opening eyes. You saw a lot of companies leveraging 3D printers to all of a sudden make face shields

Layered – Episode 2



TALI ROSMAN

and PPE equipment at the speed in which they were able to apply to the market needs so fast and so instantaneously. I think that left a mark with a lot of companies. I think it also kind of fleshed out the need to have these very easy workflows, the fact that you need more comprehensive solutions around it. And I think this is why we're starting to see in the market a lot of companies from doing everything from partnerships to mergers and acquisitions to other corporate development tools to be able to drive more and more holistic solutions and simplify the workflows for customers.

Todd Grimm [00:08:49]

Well, so that's definitely application, but. Well, application is the best way to describe it, any other 2021 takeaways in applications or specific to hardware or software or materials that caught your attention that you think are good signs of what's coming in 2022?

Tali Rosman [00:09:11]

Yeah, so first of all, I think, you know, conversations with customers around the value of additive manufacturing and how it can help their supply chains became much easier. Part of the way to solving a problem is admitting you have a problem. And I think this year everybody admitted they have a problem with supply chains and they're struggling to get parts. I do think we're starting to see more emphasis about changing the way you think about additive manufacturing in the sense of if you're thinking about managing supply chain disruptions, then putting your 3D printer in the same centralized facility where you're making your casting parts, for example. It's not that you're not maximizing the value of additive manufacturing. It's not just about getting parts on demand. It's also about getting the parts where you need them close to the point of consumption, so, you know, reducing a lot of the shipping risk. And so by using additive manufacturing in a distributed manufacturing fashion instead of centralized, you can reap a lot more benefits. And that's certainly something we're starting to see. And you see a lot of solutions coming into the market, whether it's in the hardware side with easier to implement solutions, but also on the software side. A lot of tools designed to take what I would call some of the tribal knowledge that the industry has had and make that tribal knowledge more accessible to

Layered – Episode 2



TALI ROSMAN

everybody so that more players in more locations can benefit from additive manufacturing.

Todd Grimm [00:10:47]

Oh, absolutely, I agree with that hundred percent not only making the tribal knowledge, in my opinion, accessible, but also in some context, removing the need for the tribal knowledge. Let the software handle that. I'm going to come back to change the way you think. And going distributed a challenge I see with supply chain. It is a let's fill the gap, the break point, but that persists into doing what we've always done on the same part kind of concept. And I think that's a big trap for people. It is additive, really has power and has legs. It can be adopted much more powerfully or easily when you're doing things differently.

Tali Rosman [00:11:36]

So I 100 percent agree with your points. You can't use additive manufacturing exactly the same way as traditional manufacturing and the same design of the same part and the same location. It's kind of like in the early days of mobile phones when my mom would still use the mobile phone indoors because she didn't understand that you could actually walk outside with it. So, yeah, so you need distributed manufacturing. You need to think about the part design to your point, better than thinking about the part redesigns to optimize for additive. Think about the assembly, you know, instead of having, you know, we're seeing companies taking 30 parts assemblies and printing them in one part. Think about the impact that has to your supply chain instead of having 30 parts from eight different vendors and needing to manage all of them, each of them with their own timelines and their own shipping constraints, and they're also supply chain disruptions. Instead of that, you can make the part on demand in the single go instead of 30 parts that need to hold them together and close to the point of consumption. That's a total game changer. But that requires truly rethinking a lot of different components and how you're producing parts, how you're procuring parts and so forth.

Todd Grimm [00:12:50]

So for now, 2022, so I could interpret. So recognizing we have a problem with supply chain recognizing that there's things that need to be put in place before we can use this, I'm kind of guessing your say that 2022

Layered – Episode 2



TALI ROSMAN

and beyond are going to be the years we profit from the experience of what was needed and what needs to be done where more companies will be able to leverage this supply chain alternative concept. Would that be one take away?

Tali Rosman [00:13:22]

Absolutely. I think there are a lot of companies that understand that business as usual is no longer an option. With supply chains becoming so volatile, with market demand becoming so volatile, they have to have those agile, flexible solutions as with additive manufacturing in their toolbox.

Todd Grimm [00:13:40] Well, I'm taking too much of your time. I just want to conclude with Give me an adjective 2022 and beyond. Good, bad, indifferent. Bright, sunny breakthrough. Hallelujah. Well, what would I give you an adjective phrase I won't limit you to one word. So how do you sum up the near-term future for additive manufacturing specific to metals? Promising, I like it, I like it. Everyone out there promising is the word of the day and I agree 100 percent and Tali I thank you so much for your time and the contribution to this conversation on 2021 and looking forward to the future. So thank you very much Tali

Tali Rosman [00:14:26]

Thank you, Todd

Todd Grimm [00:14:28]

All right. I want to close out this segment of layered with my advice to you. Take it or leave it. And also a short video from Xerox and the ElemX liquid metal printing process. But on my advice. Focus or focus your attention on what it is you're trying to do and what needs you have to satisfy that application. And then go looking for a solution because it's so easy to be distracted by all the news, by all the new product announcements, by all the promises that you may not. Move forward, you may not have your own progress if you get caught up in all of these promises, so understand what your needs are. But at the same time, it becomes a bit challenging because, as I already said and as Tali supported. The key is to do things differently. Doing things incrementally better, faster, cheaper is a tough sell in the additive manufacturing space

Layered – Episode 2



TALI ROSMAN

when competing with a status quo product or process that's understood and accepted. To always seek to do things differently. And last piece of advice. Because the 2021 news appeared to me that the companies were developing new materials, process refinements, machine refinements, catering to the request of their customers. I suggest that one of your vetting points be, does this company have a focus on my industry or my application? If they do, I think it's far more likely that you'll get the future advances, the progress out of the technology that satisfies your needs by working with a company that plays in that space versus a general practitioner or company that's working on solutions for a totally different industry. With all that, let's close out with this video. This is again on ElemX liquid metal printing with a very topical point of total cost of ownership.