

MoS Rapid Response Transcript – Ellen Kullman

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ELLEN KULLMAN: In a crisis or in any situation, focus on what you can control. Create your own trajectory. The world's going to change. Write your own story. Don't play the hand you've been dealt, play the hand you want.

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[THEME MUSIC]

Bob Safian: Hi Listeners, this is Bob Safian, Masters of Scale's editor at large, former editor and chief of Fast Company, and your host for Masters of Scale Rapid Response. Today, our guest is [Ellen Kullman](#), the former CEO of DuPont and now, CEO of the digital manufacturing company, Carbon, which was founded in 2013 to bring 3D printing to industrial scale. Carbon has since grown to more than 500 employees globally, best known for partnerships with Adidas and football helmet manufacturer, Riddell. But now, they've pivoted in response to the coronavirus pandemic.

Working with Alphabet company Verily, Carbon recently began printing face shields and nasal test swabs. They've already gotten FDA approval for the face shields and are sending them out to hospitals. And they intend to post the open-source design on their website so anyone can start printing them, including other 3D printing companies. This is a great example of how you can act quickly, stay nimble, and focus on what you can control in times of uncertainty. We wanted to talk to Ellen about this because she has a lot of experience in dealing with crises, as the former CEO of DuPont, and now, as the CEO of Carbon. There is so much we can learn from Ellen about leadership and we're excited to have her on Rapid Response. Watch out for Ellen's full episode on Masters of Scale, coming this spring. And now, Reid is handling today's interview, so Reid, over to you.

REID HOFFMAN: So here we are on a Zoom call that is of course, part of the shelter in place and the way that modern businesses work – especially here in California – but many areas of the world. And I've been looking forward to this for a while, to interview Ellen Kullman, of Carbon. Ellen, welcome.

KULLMAN: It's a pleasure to be here.

HOFFMAN: So, you started at Carbon five months ago. And then of course, January, February rolls in and now we have a global crisis that makes the 2008 crisis look a little soft and cuddly. How much did that feel like déjà vu?

KULLMAN: You know, it's funny, friends and family have noted that maybe I should not take a third CEO role for that exact reason. That seems to be happening again, right after I take a role as a CEO. But you can't change what's happened. What you can do is figure out what you're going to do about it. And my team looks at me and they say, "You know, you're amazingly calm." And I'm sort of like, "Well, yeah, this seems to be worse than the other crises I've had. But I've been through quite a few crises and it doesn't really help to get all angst-ridden over it. You just got to focus on what you can control."

So it's real, it's happening. There's no playbook for it. There's no end that we can count on. Nobody that I know is planning for May 1st restart and nobody's planning for it to be a light switch that turns on.

It's going to be a rheostat when we come back and it will come back in a very, I think, a very methodical way, to protect people. And so it's really engaged us in planning and different flexibility around that planning.

I mean, the real positive around the culture at Carbon, and I think this is widely in the Valley, is its adaptability. That if, okay, this is the situation, then let's get after it. There's just a quicker pace. It's a quicker turn. People seem to absorb the information and move and get on board more quickly than maybe my experiences were in big companies. And I think that's a real positive. Not that we know what the answer is, but we all talk daily. We, you know, I call it a standup meeting, although we're all sitting in different places, but it's a quick meeting just to check in on what's working, what's not working, what's the situation and what's changed.

And more importantly, how are people doing? It's very stressful. You know, people are home with small children and how do they handle the kids, the school, work/life kind of thing. It's quite the challenge.

HOFFMAN: Stepping into this crisis, one of the maxims is to not waste a good crisis. And one of the key things that people start with is looking at threats and challenges, but that also becomes an opportunity, an opportunity to really express the mission, and an opportunity to do something important and unique. How is that playing out in Carbon? Cause there seem to be lots of different ways that innovation in printing and manufacturing can be essential to what the years ahead look like.

KULLMAN: I think it's been really interesting because in life sciences, in medical applications, the timelines are usually very long, and very prescribed by the FDA and

other regulatory bodies. And we've been working on some great areas there with J&J and with other companies around how to use our technology. And this is an area where when we, you know, not knowing how long this crisis will last, how can we turn our technology to be useful within days or weeks, not within months or even years. And so in just discussions among our people, inbound calls we were getting from our networks, you know, "Can you help make ventilator parts?" Well that's a longer term thing. "Well, what can you do because we're short on PPE?" And I knew the PPE side because DuPont's in that business with the gowns and drapes and things like that.

And so face shields came up as an opportunity. Can we print the frame and the band and then just snap into place? And so people can use them. Can they reuse them? You know, we had interest, from both Stanford and Kaiser Permanente to trial. I mean, within days we had a design. It kinda started with conversations with Verily, the Alphabet company behind Project Baseline. And we came up with this design for face shields.

The next thing we did was engage 300 of our partners, our customers who own our printers, whether they're in the dental space, the industrial space, you know, contract manufacturers. We engaged them and said, this is what we're doing. We'll put this file out on our website, you know, open source it. And, this is a great opportunity for, for all of us to produce locally, use the power of 3D printing, use the cloud, download the file, produced locally. We turned our own laboratories – we have a large, not a large, but for us it's large advanced development facility in Santa Clara. And then we have our labs in Redwood city. We can produce this there. We can utilize our printers. Instead of sending our people home, we can utilize them to produce these things.

And within, I mean, literally two weeks, two and a half weeks, we shipped 7,500 face shields last week. We'll ship, I don't know, 15, 18,000 this week. And just our production, just what Carbon owns in our labs, we'll probably be producing 20,000 of these shields a week for as long as you know, the demand is there. We have customers who downloaded the file and started producing locally. We've seen on Twitter and on other social media feeds companies as far away as the Netherlands showing how they're using our technology to produce these face shields.

And so, to me, the thought of doing something like that that quickly at a company like DuPont, where your assets are large, your assets are not very adaptable? It just shows the power of being able to really pivot our organization and move from producing literally samples and mid soles for Adidas on different designs or Riddell football helmet liners... You know, our, our lattice material absorbs energy, dampens energy. So the NFL and Riddell has been looking at that and to pivot from there within days to make face shields to alleviate the shortage for medical personnel and, and healthcare systems and even first responders. I think it's a real proof point on the power of the technology.

HOFFMAN: Yeah, it's really amazing and great. Anything that your customers are doing that surprised you in their ability to use the technology to, to respond to the crisis?

KULLMAN: You know, I tell you, we have designers who work for us that work with our customers and I was worried that they wouldn't be busy and they're very busy. We're getting calls in all the time, "You know, I'm trying to help this guy out to produce this. Can you help me? How do I optimize this design? What materials should I use?" Things like that. So we're using our resources to help all of our customers see how they can support and be part of a solution. And there's just a lot of energy around it.

HOFFMAN: Yup. Say a little bit about the handling of ambiguity, because one of the things I think if I kind of draw the line between the dots of your career, you seem to take on crises spectacularly and this seems to be one of the early crises that you navigate in a super strong way.

KULLMAN: Look we were all going to hit bumps in the road and have positives and negatives and I have learned so much more from the tough challenges that I've handled than I've learned from the successes. And you know, one of my mantras I've developed over time is focus on what you can control. And that might come from my engineering background, cause I'm a mechanical engineer as an undergraduate. And I think it is that look, the world's gonna throw at you a lot of things. Now the question is what do you do about it? What can you do in order to improve your company, your situations, your business? And I learned that I could control my actions in terms of pricing, in terms of availability, in terms of my relationship with key suppliers and key customers.

And so focusing the organization in times of great uncertainty helps free them. Right? Cause a lot of times a paralysis seeps in. You know, "Oh my gosh, the world is falling apart, my business is falling apart. You know, what do I do?" Well what you do is you figure out what you can do, what you actually have some modicum of control over, and figure out if it's going to help. And get after it and get the team focused. And I think that was the first of a series of opportunities I had to really learn and develop myself as a leader. And so it's true. Ambiguity does not bother me as much as it does sound.

HOFFMAN: Well that's the first of I think what, what I've read, as your four crisis principles. Do you want to do the other three as well?

KULLMAN: Yeah. So, I mean it's, it is sort of, we all learn, right? And we all think about these things as time goes on, but you know, in a crisis or in any situation, you know, focus on what you can control. I think the second one is create your own trajectory. The world's going to change. I mean, I can remember during the global financial crisis back in '08 when I was first chosen to lead as CEO. I mean, people really believed the world was going to go back exactly like it was before – and it didn't.

And so how do we create our own trajectory? What do we invest in? And it is really being very thoughtful and almost forceful with the organization about you're not going to just ride this out and things are going to be the same. What you have to do is really write your own story. Don't play the hand you've been dealt, play the hand you want, right? So I think creating your own trajectory is another key one.

I think the third is about communication. I mean, it's amazing to me. When I first learned that about the 15th time I said something, people were finally starting to believe I was serious. And that when you're in a company with an old culture, I mean DuPont was 215 years old and I became CEO. You know, people have been through a lot and they don't always believe that the new or the shiny is always the best. And if you want change and you want people to move in a direction, you really have to be very consistent. And communication, constant communication. Listening is critical.

And the fourth is about maintaining pride about the company's mission. You know, people talk about this current generation being very mission centric. I don't know. I've found that throughout my career people wanted to know that what their company did made a difference and that they were proud to be able to work there. And that took many forms. But people at DuPont were really proud of what we created over the hundreds of years we were in existence. You know, things like Kevlar to the bullet resistant material, and Nomex the fire resistant material. And that's just a couple of the examples of what they've done. And whenever big change came or whenever crises came, if you centered them on our core values, if you centered them on the mission of the company, that gave people hope, and it gave people again, something to help them focus their energies. And these things have proven to be valuable to me in my entire career. And I think that's why I keep coming back to them.

HOFFMAN: What were some of the things that either at Titanium or DuPont that you thought would be good things to navigate crisis that turned out to be negative lessons? What were some of the things that you thought would be good in crisis management that actually turned out to be less, less effective?

KULLMAN: Well, you know, sometimes you try to get maybe too cute or maybe too, too bold – and I'm not saying bold is bad, but I'm saying bold has to connect. So what people want to know is “Why?”, right? Why, if we're here, do we need to move there? And the more you separate “here” from “there” and the more you just talk about “there”, they're not going to get it. You have to take them on that journey of moving from here to there and “there” has to be a connection. It's like in my life, a lot of times it's follow the science, right? If we were entering a new area, things like that is how the science moved us in that direction or the research moved us in that direction. But it has to connect them.

If it's so far afield of people's comfort zone that they're not going to get “there” very quickly or maybe at all and that you really can't just paint the future picture – and I've

tried that several times and failed – without connecting it back to how it's a natural progression from where we are and why it is a better place to be. So I do think that connectedness is really important. And if a movement, if a strategy doesn't connect, it's going to be very difficult for the people to really move with you.

I think the other thing is, I watched a lot of people come into pop mid career and the ones that succeeded were the ones that honored the culture, that honored the parts of the culture that were good. The ones that failed were the ones that came in and said, “You know, wow, you guys, that's not the way I did it back at...” And you know, people want to know that their history has meaning. And again, it's that connectedness, but it really is connecting it to, “This is what you guys do great, let's keep that. But if we added this, this is how much better we could be.” Or “Let's try this. Let's see.”

And so I think people are willing, also, many times in change, to go along with something if they think it's an experiment as opposed to an edict. I mean, edicts sometimes work, you know, and the more authoritarian the leader is, maybe the more they can ram that through. But I think if you want people to follow you – and this is where I learned a lot from going from more of an authoritarian style of leadership to a more inclusive and or influential style of leadership – is that, you know, I used to laugh and say, “Okay, next experiment, let's go try this.” And not all of them worked out but enough of them did that we really created some great opportunities and growth.

HOFFMAN: What are some of the principles about making those experiments work generally in the field?

KULLMAN: Well I think that, you know, first of all, I find that common language is really important. I find that anytime I go into a different company or even going in to customers or vendors, making sure you have that common language. And I think the other thing is, and again, I learned this from studying engineering, is that if you don't have a hypothesis on what the outcome is, pretty specific hypothesis, then you're not going to know whether you're winning or losing.

You know, a lot of times I've had teams that have say, “We're going to try this and see what happens.” So I said, “Okay, what do you expect the outcome to be?” You know, “Well better than we are today.” Well what does that mean? You know? If you can gain alignment on what the goals are specific goals are and what winning is, that allows you, depending on what the outcome is to say, “Okay, it didn't work out at all. Let's go back to square one and start over.” Or, “Hey, you know, about 50% of this work, let's back off and look at it and take it from there.” But it gives you that common language, that it becomes not personal: I succeeded or I failed. It becomes that, “Okay, this is what we did and this is what we tried and it didn't work. So what are we going to do again?”

zit's one of the things I used when I started the safety and protection business at DuPont which was, we were literally getting a room every Friday afternoon and said, "What worked this week and what didn't?" and "Okay, based on that, let's change these things and let's go at it again next week."

And you know, when you're starting a new business, as you well know, you have to have that kind of pace of play, that kind of openness and trust in each other that "we have each other's backs and that we're all in this together." I mean, even when you're starting a business in a big company like DuPont, the same kind of principles hold.

HOFFMAN: And what this is I think a good point to ask go into a little bit more depth on, what are the ways you apply focus on what you can control. What are some of the key learnings about like, "Here is a question to ask yourself, here is things to do, here's things to avoid in tuning that focus on what you can control."

KULLMAN: Yeah. So you know, people get really excited about ideas around the ability to scale or to do different things. And you know, I guess the example of the swab, that are in short supply is a good example of that, because that obviously needs a lot more clinical input. It is inserted into the patient's nasal cavity. It's what they use to determine whether you have the virus or not, it has to work with the PCR machines, different hospitals have different kinds of these things that actually turn that sample into a test result. And so, sometimes, you have to slow it down to go fast. Right? And so what can we do? We can create the designs, we can overnight them to clinicians. We can get the feedback the next day, redesign, you know, we can work in a matter of days.

Let's not get out there and explain, "Oh, we're going to solve the world's problem on swabs." Let's make sure we have something and let's make sure we can create a supply chain very, very quickly in order to be able to deliver. And then we're not a medical device company. Right. You know, face shields are one thing, but these nasal swabs are another. So we partnered with Resolution Medical, one of our customers. They've partnered with some of the dental labs that have capacity on our larger printer, to print these. And we're crafting how this would all work in a very practical manner.

So people have a tendency to want to run, but when they're running, they can't control all the aspects of it. And if something falls off, then you certainly don't want to be sitting there having to regroup and step back and start all over again. And so the swabs taken us a little longer. It was like three weeks, but it's, yeah. Now as the launch has occurred, it's in a much better place from a supply chain standpoint, from ability to deliver from clinical feedback, and the ability to really have it work and make a difference.

HOFFMAN: So one of the things about crises is there are lessons there: how you can reset, how you can refocus, you can change directions about where you're going. Clearly one of the things that the whole world is kind of pivoting on: "Oh my gosh, we need a medical equipment,

we need a test, we need a bunch of other things.” And that is part of the agility that the supply chain and manufacturer needs to have. Carbon’s clearly a key part of that. What’s the deployment of this technology both now, but also what’s the really key lessons for how we build this agility into what our industries of the future look like?

KULLMAN: When we think about surge capacity or things like that, whether it’s in the medical community or other things, usually – and you’ve seen it with some of the longer supply chains – it can take a year. It could take longer in order to be able to really change the math, right? In terms of how much of a need a product you can get and what kind of timeframe. And I think there are many industries – and I think medical is one case in point where you could have a base load and then you could create surge capacity that is multiples of that base load. By pivoting the, or utilizing the agility of the manufacturing production network and having not only these files complete and agreed to by clinicians and you know, FDA class one exempt or whatever the right regulatory level is in them.

And, we have to be better prepared and we have to be able to then move very quickly and you can’t move quickly if you haven’t done all the basics. And we’re doing a lot of the basics in weeks now. There’s some things that are going to take longer as you talk to the people who are trying to move, like for instance in ventilators and things like that. So what are those critical supplies and how do we need to change not only the base capacity but the surge capacity in doing that?

And I think 3D printing can play a very important role there. You know, we’ve seen it with our, with our production network. They’ve really, you know, done a phenomenal job at engaging at changing what they’re doing, getting, you know, getting the things done and doing things like we’ve never sourced PET face shields for, you know, for the, that part of the face shield. But our people figured it out and got us supplier, got it in, and made that happen. And we need to create more of that surge capacity capability. And that’s where if you’re only looking at this quarter’s earnings, if you’re only looking in the very short term, you’re never going to make those investments. And I think we’re seeing the result of that at this point in time, that that’s shortsighted.

HOFFMAN: So one of the things that is a kind of, call it a kind of a cultural theme within the Valley, is the power of that revolution and software and revolution in bits is bringing to everything. And you know, obviously some of that is just purely within software itself. You know, that’s you know, the cloud and whatnot. Some of that’s applying software to things like autonomous vehicles.

But one of the things that’s like kind of stunning when you begin to think about this lens when it comes to Carbon is like, well actually now we have this kind of agile and massively increased agility in manufacturing, but we also are bringing the power of software and design and iteration and learning and change directly into the construction of scale manufacturer. Is there any

lessons that you and Carbon have had so far about what is that new world? What is the view of that new world from this increase of software and digits into this world of atoms?

KULLMAN: Pretty much, there are not many out there today of how software can impact manufacturers. I mean it's just not about optimizing your supply chain. It literally is about iterating on designs and creating real prototypes that can be desk tested and then you can manufacture large volumes in the same material and the same printer and take it to, to a scale.

And so I do think that the historic ways that even, ou know, my customers at DuPont created automotive parts optimized with automotive parts. They took months to get a tool. They had to line out the production and that type of timeframe in like a year, 18 months can be shortened to weeks or months. And I think that's the power of software too. The other power is when a disruption occurs in one part of the world – a natural disaster, a hurricane, right – you can take those files, and move anywhere else in the world to produce those parts. And so you're not reliant on just one manufacturing site or in an area of the world that had a very difficult natural disaster occur. And so it allows more continuity when you can do that and have that power that is on a broader scale than where we are today.

HOFFMAN: Yup, makes total sense. All right Ellen, it's very, it's a pleasure meeting you on the, on the, on zoom and I look forward to meeting you in person. Thanks for joining us.

KULLMAN: Thank you very much and I will look forward to meeting you as well.