Episode 12 **Stanley Black & Decker Manufactory Revisited** **July 17, 2019**

Martin: Welcome to this episode of Simsbury Bank's Manufacturing Matters. My name is Martin Geitz, and I'm President and CEO of Simsbury Bank, and I'm delighted to be here for a second visit to the manufactory here in downtown Hartford with Sudhi Bangalore. Sudhi is the Global Vice President with Stanley Black & Decker, responsible and a visionary who, uh, created this wonderful facility for research, development, and deployment of advanced manufacturing right here in downtown Hartford.

Martin: When we were first here back in November-December, this was all pretty much open space, but now, as we come through, uh, it's fully developed and all of the uh, uh, activities that you were describing to us back, uh, in the fall are now fully at work and I'm wondering, Sudhi, are you happy with, with the way it's all come together?

Sudhi: Again, thank you Martin for revisiting us so we can actually show things that we talked about. Uh, in manufacturing the most important thing is just to really show things. So, so, I'm really glad that I'll be able to show things that, that we talked about, uh, when you visited us a few months.

Sudhi: And yes, uh, things have really come together nicely in terms of a couple of, uh, things. One is, we really have solutions now, uh, tha- that we're deploying in our factories, th- that are working in this center, that gives us more credence and confidence with our, uh, people that are using, that will use it in their factories. So, to that end, it's a, it's a really significant milestone.

Sudhi: The other thing that it is giving us obviously is the ability to attract more talent. We've always had a, a good, uh, ability, uh, in terms of attracting talent that is, uh, important initiative but now, when people come in and actually see, the comments have been so, uh, positive. And it gives us an additional edge, if you will, uh, to attract and- and hire some of the best talent there is in the market. And there's not many, by the way (laughs), in this space.

Martin: Right, right. That's fantastic. That's fantastic.

Martin: Have things evolved at all from, from the original thought about how, uh, your factories around the world would interact with, uh, this laboratory, uh, and this manufactory, and, and how, uh, uh, employees and the workforce would, uh, leverage the great, uh, the great resources that you have here?

Sudhi: That's a good question, actually. Yes, uh, it has evolved in, in a few ways. Uh, the first thing that has happened over the last few months is the fact that we continue to see macroeconomic trends that are not exactly stable for us, given that, uh, there's such a high and active dialogue around trade and tariffs and so on.

Sudhi: So, to that end, uh, what has happened is, uh, we are now sequencing our solutions differently, prior- prioritizing, uh, our solutions differently, uh, so we need to accelerate, uh, the impact that we need to drive so we can then help mitigate some of the, uh, the tariffs that, that we will, that we will see, uh, based on everything that we're seeing in the news.

Sudhi: So to that end, uh, that is a first change that we're seeing, so, uh, high level of urgency to get smarter in terms of what we can d- deploy sooner-

Sudhi: ... and also the second, uh, implication of that, uh ... just to, uh, just set the stage this, this center and this whole program, uh, is a two-speed organization. By that I mean that is one speed, which is, uh, which is to really take solutions that have already been proven, for example, the connected factory that allows us to deploy IIOT, that stands for industrial, uh, Internet of Things, I- IOT into our factories, while those, that's a fairly proven technology, so, we're deploying that, and, and a few others like Cobalt, et cetera.

Sudhi: But then there are use cases or solutions that are not proven yet. Uh, and, and those solutions obviously have higher value that they bring, but by the same tokens there's a lot of effort that goes into, uh, research and development around that. So, with that as a backdrop, which we're now seeing is not only do we have to deploy the, the proven solutions faster and smarter, uh, but also put more focus on the higher value, yet to be proven solutions category as well.

Sudhi: So that is obviously again opposing challenges and opportunities both, uh, for us to attract talent to go after the higher value use cases, and the research of those. So, to that end, that's a second, uh, dimension of impact that it, that, that, the macroeconomic conditions are, are, um, uh, for lack of a better word, forcing us to, uh, to fast-forward.

Martin: Yeah, yeah. You know, it's fascinating that the, uh, you know, t- trade issues, the tariffs, uh, uh, real life impact on any manufacturing companies, Stanley Black & Decker and certainly everyone else, in your ability to deliver to your customers the products you wanna deliver at a price that they're willing to pay, around the world, uh, and it, uh, it, it comes, comes to mind that what you've just described is really the business case for how important the manufactory 4.0 is, for how important this investment, **and** in fact is proving itself because of this unexpected urgency around, uh, being able to, uh, respond to the tariffs and to the, you know, the trade wars, uh, that, uh, seem to be, uh, bubbling there, uh, and really provides an opportunity, if you will, to really demonstrate, uh, how important this investment is for the entire company to be able to move quickly and to advance manufacturing. It's, it's remarkable how, you know, real life

events, you know, create an opportunity. It may be painful then puts a lot of pressure on people, uh, clearly.

Martin: But, but it really does, uh, kind of, provide the proof point of, uh, the wisdom of this investment.

Sudhi: Yeah, and you know, that's why I carefully mention, it, it's a challenge and an opportunity.

Sudhi: To your point, the opportunity is, "Hey, uh, how do we use this sc- scenario, if you will, uh, to fast-forward some of those things we were planning on doing anyway?"

Sudhi: The other thing it allows us to do is, get ahead of, uh, our competition. As, uh, as we, we have, as our CEO has mentioned before, scoured the world, uh, to find a center like this in industrial, and there's not many. In fact, we haven't found any.

Sudhi: So to that end, this is a unique investment. And to that end, we wanna leverage it and sweat it the- the best way we can so it gives us the agility, uh, to react t- to these scena- scenarios in a more intelligent and thoughtful manner.

Sudhi: And also gets us ahead of the competition.

Martin: Yeah. Yeah. It's amazing.

Martin: So I understand, at Stanley Black & Decker, there are sort of three value streams or three themes that kind of, uh, overarch the strategic approach the Stanley Black & Decker takes to its businesses. There's the connected factory, uh, flexible automation, and advanced analytics. And I wonder if you could talk little bit about how you're integrating, uh, the manufactory 4.0 into those broader, uh, Stanley Black & Decker themes.

Sudhi: Yes. So, the- these three, uh ... these three streams, t- technology streams you mention, Martin, uh, is- is- is our demarcation, if you will, in terms of, uh, as I've mentioned before, for example, connected factory. This is fundamental. I mean, we cannot do analytics if you don't connect assets and get data. Uh, you cannot do, um, collaboration across our factories and within factories if we don't have connected factory. So it's almost, uh, it's akin to the- the fiber optic cable that- that we lay down across country and across the globe a de- a few decades ago. Right, a decade, fifteen years ago. So it's as, uh, it's as straightforward as that. So this is really fundamental. So we've got ... I would say almost a rhythm to how we're deploying this connected factory, uh, solution across our factory landscape.

Sudhi: And then of course, flexible automation that includes cobotics, that allows people to work with, uh, technology robots. It's been a good success for us. We started deploying them starting January, and our people love it because it

allows them to do more work that has more thought- and- and, uh, has- is- gives them paths forward in the career that didn't exist. Uh, so now they actually, uh, we have seen instances where workers now who were very apprehensive of- of robotics and cobotics, now actually managing three or four cobots because now they've suddenly gotten upskilled, and- and- and they love it, so they can do more work that leverages their mind and their skills much better.

Sudhi: What has been a- a- a development that's worth mentioning in a, in a positive way is analytics, we have seen analytics work really well in the social world, but in manufacturing it has taken a while for- for it to really start yielding results. And we have started ... uh, in the last three months, we have seen some good progress, uh, in- in fact, pleasantly surprised at the kind of impacts we're seeing. And that has to do with, uh, what we call is video-based analytics and vision-based analytics; so, we have so many cameras now. Every one of us have- have cameras that are high resolution, can capture data, and- and pictures and so on. So, we use that, uh, we use video-based analytics to do, for example, um, analytics around why we're causing scrap; when we make tape, right. Or, or things like that. Um, so there's several opportunities where- where we are now putting a few cameras around what we build, and then we can protect, if the quality's gonna go down, if there's some things upstream that we can do better in terms of inspection and so on with the materials that then helps us to improve the quality of our products. So to that end, um, it is very cost-effective because cameras are not all that expensive, and then, so, uh ... so that has been a very positive development for us. And in fact, this has been, across the industry that is same trend we see, uh, in the, uh, oil and gas industry, and heavy industrial and so on.

Sudhi: So that has been a very good thing and we are obviously jumping on that with- with both feet now, with- with that stream of analytics, and we're putting everything we have so we can deploy them faster.

Martin: That's remarkable, you know. You think about any kind of sports on television, right. You know, the instant replay, and, uh, you use the instant replay to figure out what went right or what went wrong in the play. What you're describing is how you're- how you ... basically, through video, you're able to t- to do, uh, same sort of thing, you know.

Sudhi: And not only ... I forgot to mention, acoustic is the next, uh acoustic analytics is the next wave of, uh uh, value that we are ... we, we expect to get, because now, you know, when things go around like you're in your car, you can hear 'em, right?

Sudhi: So the same philosophy applies with industrial equipment and settings. So they ... you know, putting, uh, the right kind of acoustic sensors and being able to mine that information to, again, improve the quality of what we build, and the amount that we build, you know, in another words, efficiency of our production uh, goes up significantly. So that's gonna be the next, uh, complementary technology that we will deploy.

Martin: That's remarkable. And- and this illustrates, you know, just what you talked about in our first interview, which was, you know, what is industry 4.0? What is manufacturing 4.0? And it's the integrating of all of these-

Sudhi: ... physical assets.

Martin: ... physical assets with technology and so forth, and- and there you just described, an example of how it all, all comes together, that's remarkable. Who would've thought? Who would've thought?

Sudhi: So that has been a positive development. And so, uh, so we're putting a lot of focus in terms of how we can get our technology partners to help scale up because now we know it works, now it's all about, how do we quickly then deploy these technologies, making sure again that when we do deploy these technologies that our people are part of that, because the game ends when you deploy technology that- that our people are either skeptical about it, or they feel that it is not of use to them.

Sudhi: So, uh, that has- that has always been, in my opinion, th- the critical differentiation of this program, it'll- it'll continue to be so.

Martin: Yeah. Remarkable, remarkable.

Martin: So one of the other things we talked about back in the fall was expectation that you would deploy this resource not only for the benefit of Stanley Black & Decker, but also, uh, to, uh, you know, work with small- and medium-size businesses that might have, you know, some, uh, interest in what you're doing here, and- and- and be able to tap into your resources. Has that piece of the, uh, effort, uh, c- come to fruition yet?

Sudhi: It is- it is moving in the right direction. To be- to be, um, candid with you, I would like to see more speed with that. We've had a couple of, uh, tours if you will, and- and companies that are very interested to- to now, after the opening of this center, to come in here and take a look at some of the solutions we are creating. Um, and then we are also there is a, a part of that effort in terms of promoting what we have at this small to medium business, uh, this state and- and, uh, city, uh, organizations who are helping us bring people, and- and create a consortium if you will, that allows us to then take what we have and other companies that might have built something similar, and then proof-test it in a small to medium business setting, so there's some infrastructure needs to make that happen. So, that is happening as well.

Sudhi: So, I would describe it as, it's- th- that whole opportunity is in motion, and, uh, hopefully it'll pick up more speed uh, so that we can at least have one or two or three pilots, uh, in- in terms of o- our ability to take what we have and put it in other businesses, and see how it works, uh, hopefully by the end of this year, so at least that's a goal that- that I'm setting for myself.

Martin: Yeah. Wonderful, wonderful. Uh, and, um, are you ... we were touching earlier on- on, uh, the value of, uh, the manufactory to, uh, attract great people into Stanley Black & Decker. Uh, you wanna talk a little bit more about that and- and, um, a- a- are- are you able to find people here in Connecticut or are you- are you, uh, recruiting people from other parts of the country or other parts of the world who are finding, you know, what you're doing here and- and its impact on Stanley Black & Decker or around the world, uh, to be more appealing because of what you're doing here?

Sudhi: We are, uh, we're do- we're doing a good job, I think ... we've done a good job in terms of attracting talent. Uh, as- as I've mentioned in another, um, interview, uh, I was pleasantly surprised at the, our ability to attract talent, in, you know, this whole initiative given where we are located, uh, and then I was, uh ... we've, we've had good success in att- attracting talent. So the initial way of talent mostly came from out of state, which I think is a good thing, uh, because people moved all the way, you know ... I've had instances where people have moved from Texas and- and- and Michigan and so on in- into- into this facility. And, uh, so that has been good, and then in fact we had people move from other parts of Europe into, uh, the U.S., uh, for this, uh, for this, for this program.

Sudhi: But lately, what we're also doing is t- to tap into the local talent, which primarily, given the nature of- of Hartford, there's a lot of talent around financial and insurance, and- and aerospace. We're now attracting talent from those industries, and see how we can, kind of, tune, uh, their expertise into what we do, because our industry's slightly different discreet manufacturing, but then technology to certain extent is common across, um, any- any businesses, so we were seeking that commonality and see if we can use their commonality to leverage talent that exists here.

Sudhi: So we've slowly started making the pivot, so, uh, so that way we can actually attract local talent, and in fact, groom, uh, talent. That will be the next step which we have started to do.

Martin: Fantastic, fantastic.

Martin: So maybe one other question and then we'll take a little tour around and talk more, uh ... it- it comes to mind, uh ... so- so, you're- you're integrating what you're doing here into your factories around the world, uh, and I'm sure that it all takes time, and it's a process and so forth. So the- the factories that you are working with now, uh, h- how would they, how would they describe the benefit of- of what they can, uh, leverage from what you're doing here and the information that you have here? How- how- how would they describe the change that they're experiencing, thanks to what you're doing?

Sudhi: Uh, the- the first, I think, reaction you would get if you were to talk to some of our people in our factories is, uh, they're very hopeful.

Sudhi: Uh, they have heard so much about technology in the media and obviously our own communication, uh, setup that we have within the company. We use Workplace, which is sorta like Facebook. We have the largest, uh- we have the largest, uh, population in a business, uh, applying- using Workplace, and so it's been a very effective media- medium for us to communicate. So there's a lot of news that we put out in terms of sharing success stories of this program, using that medium, so based on, as I said, external media and their own media within the company, uh, you would, uh ... you would, uh, hear our people say that they're very hopeful, uh, in terms of how it'll change, at least the ones that have not yet received the technology. And for the ones who have received technology from this center and this program, uh, they are obviously, uh ... you would hear that, uh, it- it is ... we are working out well. Of course there are kinks in terms of how it can be better, uh, but for the most part, what we have heard is, there is a resounding acceptance to- to this technology.

Sudhi: What's interesting about our, uh, user group, if you will, in our factories, you have, uh, the- the- the young- younger generation, the millennials, you know, the- the 23- to 30-year-olds, and also the 50 and on up.

Sudhi: We see both of these pockets, uh, have the highest attraction to this- to this technology. So, we have find that- we have found that dynamic to work really well. Uh, and I've heard of this and read about this in, you know, the financial industry in Netherland's, for example, insurance industry. They did- they did a couple of exercises there, and it was very similar there. So it goes against common notion that, oh my goodness, you know, the older you get, you can't use technology?

Sudhi: It depends on how you present that technology. and who is actually, for lack of a better word, selling the technology to you, right? If you're in the 50-something age group. So that is- that has been a fantastic dynamic for us.

Sudhi: So you'll get to see all of the folks that are actually helping us deploy this technology in our factories fall in these two categories. So the older generation or, you know, or- or the wise sages if you will, helping the younger generation with the finer points of how business works in a factory, and the younger generation is all about just soaking it in and- and saying, "Hey, this is- this is how life works." So it has been a ... it's a great, uh ... it's been a great learning to watch this dynamic play out.

Martin: That's very interesting, uh, generationally because and- and- sort of, what comes to mind is, you know, who has an appetite for change? 'Cause everything that you're doing, is you're changing the way manufacturing occurs and so younger people generally, uh, are very open to and- and question everything and wanna know w- why do we do it this way? Why don't we ... right?

Martin: And- and, uh, people who are experienced and have probably been through all those changes in the course of their lives, uh, and have an appetite for, "Yeah, let's get it right. Let's- let's do it their way." So that's- that's very interesting that

the ... sort of the two ends of the age spectrum are the ones who are most willing and- and accepting of change and- and, uh, and- and, uh, investing energy and trying to do things better.

Sudhi: And I wanna add one last point, if you don't mind, is ... and I was reflecting on why that is so, if you are 50-something and, you know, you have very little motivation for change.

Sudhi: I think what helps to be not that case is, if you really like what you're doing and you like the company that you're working for, and I tend to believe, uh, that these folks that are in, uh, factories whether they came with an acquisition or they're part- within a part of the original Stanley family, there's so much pride with the brand and there's so much, uh, they care.

Sudhi: And when you do that, then you want all of the rewards that you- the technology has to offer and other needs to offer, uh, to- to use it to your advantage so you wanna be still, even though you're slightly older, you wanna be part of the company and part of this movement.

Sudhi: So that's at least my, uh, thinking as to why they're putting their best foot forward as opposed to saying, "Eh, this is not gonna work," which tends to be the opening position for lot of things and, you know, with change.

Martin: Yeah. Well, it speaks well to Stanley Black & Deck- Decker's culture, right? You must have a culture that, uh, uh, supports and invites and encourages everything that you just described and, uh, that's so important to the success of any company. If you've got the right culture; your folks are gonna behave in the way that, uh, moves the ball forward and- and- and, uh, allows you to achieve the great goals that you have.

Martin: So Sudhi, we've talked a lot about, um, how your, um, manufactory 4.0 is- is integrating itself into Stanley Black & Decker and all the wonderful things you're doing. That's a lot of work everyday. And I'm just curious about, h- how do you manage this day to day? How do you run this operation day to day?

Sudhi: Uh, that's- that's a really good question, Martin. So the way we're set up, uh, in- in terms of our org structure is, we have leaders who are- who are helping build these solutions, and then there are- then obviously real busy in terms of now prom- making sure that these solutions work with our factories and- and- and are helping deploy these technologies. But the center itself is being- has been managed and run, uh, by, uh, by Mathuzalem who joined us, uh, from a local aerospace company, he's got a- a- a great track record of being very hands on, very creative. So he's now the manager of this setup. So his charter really, uh, is two-fold. One: making sure that our- the solutions we're creating, uh, is- is working with all of the twists and turns to happen. When you have a solution, you add functionality, you change it. So his job is to make sure that it continues to work seamlessly and then communicate that to the outside world. And the

second thing that he does is then to make sure that he adds new technology, uh, to ensure that we can now test everything that we build here before it gets deployed. So think of it as a- a test organization that can make sure that- that everything works together well. So when we do go to our factories, we spend very, less time tweaking some of these solutions in the factory. So those are two important, uh, jobs or roles that he plays. And so, uh, you'll be meeting him when we take a tour of this, uh, facility.

Martin: Wonderful. Excellent, excellent. Wonderful. Thank you.

Martin: As Sudhi mentioned, we're very fortunate to have Mathuzalem DeMelo here, as well. Mathuzalem is a manager of the, uh, manufactory 4.0 here in Hartford. And, uh, I wonder, Mathuzalem, if you could talk a little bit about what's the work that you do out in the floor, uh, to solve problems and find- find new ways and innovative ways to, uh, enhance the manufacturing and warehousing and other, uh, challenges you have as a company.

Mathuzalem: All right, so, the, we ... dividing the manufactory into- to help the two of our business units ... so, Stanley engineer fastener and global tool and storage or GTS. Engineer fastener seed bolts that go in iPhones and bolts that go into, uh the bridges that we have today. And, uh, GTS, uh, we have the drills and all the hand tools and so on that you find in Home Depot and Lowes and such, right.

Mathuzalem: So here, with our space, we take use cases from the floor, from all those 115 factories that we have, we bring in here, and we use the three pillars of our group, with automated, uh, robotics in automation, advanced analytics, and connected factory. Doesn't need to be in particular order. What you see on the floor here, it's a flavor of- of each of those connected, bringing to the connected enterprise. It takes data and move material and so on, so on the, uh, we have warehouse, we have machine tending, we also have assembly and palletizing and logistics; which you take cobots and mobile robots with advanced analytics to give you that- to help you make decisions, uh, to- on the floor. And that's where the use cases- you take use cases and bring it to details based on that.

Martin: Yeah. It's fascinating. Um, so basically, doing everything that you say you wanna do here, integrating technology with processes in a way that allows you to do things more efficiently, more effectively, with greater precision, greater quality, and ultimately more uh, lower cost.

Mathuzalem: Correct.

Martin: Fantastic.

Mathuzalem: And one of the main things that I- I- I was able to help us to do is to create the- the digital twin, which again, all lead to digital threads. So we have a digital twin of the process today, we have digital twin of the assets, and in the future there will be a digital thread, which you'll bring really from the very top ERP all the

way to the shop floor and give you the ability to operators, value stream managers, plant managers, the ability to make decisions on the fly, and filing leads so they can really improve their process and, uh, quality and so on.

Martin: Absolutely remarkable. Absolutely remarkable. Real time information to solve problems and allow people to be more effective and, uh, in pursuing the work that they do every day.

Martin: Well, congratulation.

Mathuzalem: Thank you.

Martin: Um, great work. It's been wonderful to meet you.

Mathuzalem: Thank you.

Martin: Thanks, Mathuzalem.

Martin: Well, that was fascinating, Sudhi, to see, how, uh, all of the ideas that you had and your team had have- have come to fruition here and- and, uh, and are actually helping Stanley Black & Decker solve manufacturing problems real time, real life, uh, every day. Um, anything else you wanted to add at this point on the progress you've made here?

Sudhi: Uh, first I- I also wanna add that, uh, what you're doing in terms of promoting manufacturing as your title says, “Manufacturing Matters,” it's really important. And, uh, so, I wanna thank you and your team for making that a prominent part of how you support manufacturing in general and manufacturing in Connecticut. So, and- and the city of Hartford. So I think it's really important.

Sudhi: Thank you for that. And I'd love to be, uh, and I'd loved participating in some of the events that- that you've organized around this whole thing.

Sudhi: Uh, so I wanna, uh, make sure that I make a mention of that. And in terms of what's to come, as I've said, uh, what I would love for you to do is come back, uh, during the holidays, I would like to talk about the progress we might- we would have made in terms of the small to medium business initiative that I've talked about, and hopefully I can share more stories of success with our technology, which could help some of the audience that will be, uh, that would be listening to your podcast, to leverage our work much better.

Sudhi: So I'm really looking forward to see how we can, not only as- as- as I mentioned many times before, as not only serve our own constituents, uh, within Stanley Black & Decker, but also the larger business of manufacturing.

Martin: Fantastic, fantastic. Thank you very much for your kind words about our effort to, you know, promote manufacturing here in Connecticut because it is so

important to our local economy but, honestly, what Stanley Black & Decker and you, Sudhi, have done here in downtown Hartford with the Manufactory is just so, uh, such a- an important investment in, uh, in- in Connecticut and in manufacturing in Connecticut. Uh, and I'm just delighted that, uh, we have the opportunity to, uh, share that with our listening audience and our viewing audience and I definitely look forward to coming back, uh, later in the year to, uh, hear more about, uh, how you're integrating and how you're, uh, working with small- and medium-sized businesses, so thank you very much for this opportunity and congratulations to you and your team and Stanley Black & Decker on this wonderful achievement.

Sudhi: Thank you so much, Martin. It's always been a pleasure. I look forward to seeing you again.

Martin: Great. So that wraps up this episode of Simsbury Bank's Manufacturing Matters. I'm Martin Geitz, a President and CEO of Simsbury Bank, and we look forward to, uh, sharing with you more great, uh, stories of manufacturing in Connecticut in the future.