MATTHEW POLAND: OK, welcome everybody to the Closing the Skills Gap Technical Assistance team giving you the manufacturing industry forum. If you are just joining, it'd be great if you could mute yourself and we all have a chance for Q&A and discussion at the end. We are recording this session and we'll make the recording available afterward along with a summary. Let's go ahead and next slide, please.

Oh, so while we’re signing on-- wish I had this up earlier. If you want to go ahead and put in the chat your name, organization, location, and the manufacturers that you guys work with. Go ahead and put that in the chat. The chats looks like-- the icon's little speech bubble. Should be near the top of your Teams app. If you want to go ahead and let us know who's here while we get started.

While you guys are doing that, I will turn to the next slide. And welcome you to-- we're going to get started here. We have a special welcome from our colleague at the Department of Labor Division of Strategic Initiatives. I think the next slide has Ayreen. Yes, there's Ayreen. Ayreen, I'm going to turn it over to you to welcome the group.

AYREEN CADWALLADER: Sure. Thank you so much, Matt, and welcome, everyone. It looks like we have a really dynamic group on today's call and really excited to hear from our diverse panel of speakers who will talk about some of the things that are happening right now in the manufacturing industry. Certainly please introduce yourselves. I see everyone saying hello. And let's go ahead and get started. Matt, back to you.

MATTHEW POLAND: Great. Thank you, Ayreen. So I'm going to start by introducing our panel during the welcome and introductions so you guys will get a little bit of background in each of our speakers. We have four folks today, and we're going to do that until about 1:40 Eastern time, or 10:40 if you're on the West Coast like I am. And then we're going to have a debrief. Our panelists will leave after some Q&A and just among CSG grantees kind of talk a little bit about what you heard and how that might apply to work in manufacturing. And then we'll close from there. So next slide, please.

OK, so I would like to induce the panelists now. I'm going to start with Bryan Sanchinell, senior director of workforce products from the National Institute of Innovation and Technology. Bryan is an accomplished workforce development professional with focused experience in learning development, organizational and change management. A 10 plus year proven track record of launching, implementing, and evaluating programs to upskill underrepresented communities and underemployed workers within an industry association, community-based organizations, and higher ed. His sectorial experience includes advanced manufacturing, design tech, transportation, culinary arts, and office services. Welcome, Bryan.

Next we have his colleague, Robert Weinman who's the director of Workforce Innovation, also at the National Institute for Innovation and Technology. With over 20 years of experience in workforce development, Robert has primarily focused on emerging opportunities and strategies in high tech and advanced manufacturing. He has worked in universities and community colleges and in private industry with industry associations and employers such as Semi, S-E-M-I, Johnson & Johnson, and GlobalFoundries.
Robert has also worked with teams to address the challenges of an increasingly mobile and non-traditional workforce. Along with his work at NIIT, Robert has been working under an NSF ATE grant to develop cloud-based solution that leverages workforce fluidity, optimize just-in-time training, and widens the talent pipeline by providing real-time, quantifiable competency transparency. And I'll be asking you all the technical details of that, Robert, when we get into our panel. Welcome, Robert. Next slide, please.

Also pleased to have George Colón, Director of Workforce and Youth Programs at SFMade here in San Francisco, where I'm based. George is a workforce professional based in Oakland, California. He has 12 years of business advising experience, last five years focused on advising around diversity, equity, inclusion, and how to support the success of a more diverse workforce.

In addition to advising businesses, George has also spent the last four years working directly with the reentry population other overlooked and underserved populations, and the non-profit workforce organizations that support them. George’s work has allowed him to build lasting and valuable connections between these entities and individuals helping to secure jobs training and talent pipelines. And George has an informed perspective of both sides and works to develop well-rounded, progressive outcomes. George's position at SFMade continues his trajectory in both experience and passion. Welcome, George. Both representing San Francisco here today.

GEORGE COLON:

Thank you.

MATTHEW POLAND:

Glad to have you. And last but certainly not least, my friend-- long time friend, Megan Chase from Owens Corning. She's the capital delivery leader there, and she currently leads the advanced manufacturing capital delivery project services team at Owens Corning, providing the composites business with project management, safety, and construction management.

In addition to her day job, Megan dabbles in installation capital delivery support, training folks on project management tools and best practices, and co-leading the Women in Operations Employee resource group to help unleash the talent of some of our unsung heroes in operations. Prior to joining Owens Corning in 2018, Megan held engineering and HR leadership roles at Whirlpool corporation. She has a BSE in mechanical engineering from the University of Michigan. Yay, University of Michigan. And with an MBA from Michigan State University. Boo, Michigan State. And with an MBA from Michigan State University. I'm sorry, Megan, but I got to stick with U of M on that one. But welcome, Megan.

MEGAN CHASE: No, Matt. We're not doing that. Keep going.

MATTHEW POLAND:

Great. So I'm really excited. We have a really diverse panel here that represents multiple industries. Multiple subsectors, I should say, within manufacturing, and they all between them have a lot of experience working in all sides of it from the engineering to working with actual production and on the floor, many of them also with workforce development experience. So I'm very excited to get started on this panel.

And I think what we're going to do now is take the slides down so you can see our cameras better. So if you want to do that, Tori. And I see we still have some people joining, so I can take care of that as you're taking the slides down so that our pictures come up. We'll let you do that. All right, there we go.
So I'm going to kick it off, and we'll kind of go around the same order that I introduced you guys with our questions here. Starting with Bryan, can you share a little bit about the organization, the National Institute, and what subsector of manufacturing you represent, if you do someone.

BRYAN SANCHINELL: Great, yeah. So the National Institute for innovation technology, its mission was formed to respond and need-- and monitor the need for strategic industries. We are representing the advanced manufacturing sector, particularly semiconductor. Our goal is to bring together industry, academia, and government to evaluate the risks to maintaining leadership and innovation.

Our goal, as we just read in the news today, the White House just invited Intel, Apple, and car makers specifically because there is a shortage in chipmaking throughout the United States. And it's because right now there's a need for chipmaking throughout the country and throughout the world. We're trying to bring in an innovation to solve that problem.

MATTHEW POLAND: Thank you. I know I can't get my hands on a PlayStation 5 because of that chip problem, so I'm glad somebody is on top of it. Robert, do you want to add-- so you're also from NIIT. You want to add to that some of the work that you guys do?

ROBERT WEINMAN: Yeah, I think Bryan nailed it. I mean, so we've been laser focused on semiconductor, but the ironic thing is that a lot of the fundamental skills that support the semiconductor workforce are translatable across all advanced manufacturing. We've got a laser focus on semiconductor now, because we want to get you your PS5.

But at the same time, everything we're doing, we're building into it the context of reaching all the advanced manufacturing. And just wanted to do a shout out to the DOL ETA, because all this work got kind of lifted up leveraging their competency model clearinghouse, specifically the advanced manufacturing and mechatronics models.

BRYAN SANCHINELL: And we just about the PlayStation 5. I know that's a consumer-facing thing. But if you look in the news, the reason why car makers are even in the room is because they're projecting that they're going to lose $210 billion from slow production for not having enough chips in their cars. So this is a real felt thing throughout the economy. I would love to get me a PlayStation 5 for sure. The economy on the whole is suffering because of this.

MATTHEW POLAND: Absolutely. George, yeah, so tell us a little bit more about SFMade and what you guys do.

GEORGE COLON: Absolutely. So SFMade is a non-profit organization that has a little bit of a footprint across the Bay Area, but we started in San Francisco two long years ago. You can consider us something of an intermediary. We work with about 600 manufacturers. In order to become a member they have to manufacture a product within the city of San Francisco, brand that product, and sell it. We work with almost every sector you can possibly imagine in manufacturing.

We support them. We provide a suite of services to ensure that these manufacturers succeed, that they grow, that they thrive. And new manufacturers come in to San Francisco and that they can create new jobs in the city so that we can connect those jobs to a more diverse local workforce.

MATTHEW POLAND: And I remember from our discussion, George, a large portion of your manufacturers are food and beverage, is that right? And we-- George might have frozen up there. OK. Are you there, George?
GEORGE COLON: I missed that entire question. Everything was fine for the last 10 minutes until just now.

MATTHEW POLAND: No, it was fine until I started talking. But all I was asking is that if-- I remember from our discussion that there's a large number of food and beverage manufacturers that you represent.

GEORGE COLON: More than any other sector in manufacturing. We have more food and beverage manufacturers than anything else throughout the Bay Area.

MATTHEW POLAND: Excellent. And Megan. So, yeah, tell us more about Owens Corning.

MEGAN CHASE: Yeah.

MATTHEW POLAND: And the pic behind you.

MEGAN CHASE: Right. Trying to make Owens Corning a little more approachable here. Some of you might recognize the Pink Panther. We do have a license agreement and have for 40 years now, a license agreement for the Pink Panther to represent our pink home insulation rolls. So we actually have a trademark on the color pink as well.

Building on that installation piece, right, we're primarily based in three different businesses. And so they actually have some slightly different manufacturing implications. We have a roofing and asphalt business, and that's both commercial and residential. So you can buy shingles from us, for example. We've got the insulation business which, again, that you might see the pink rolls in your house. We also make blow-in foam, and sustainability is a huge factor for us right now really, really focused on how do we make everything environmentally friendly and recyclable. And then finally we have our composites business.

The first two are really more focused on building materials. The composites business, in a nutshell, we make different kinds of fiberglass. And so then that's raw material going into all kinds of other things. We're tied very closely to the wind turbine business. That's a big growth area for us, again, getting into the environmental and sustainability areas. As you can imagine, we make some fiberglass that goes into automotive and aeronautical parts, and so the chip shortage, while it doesn't necessarily go into our direct products, it affects a lot of our customers. And then it also affects a little bit of the equipment that we buy within my space, which I really enjoy.

I get to play in the engineering and manufacturing space. My group builds and renovates manufacturing plants for the organization. So one of the things that I didn't know until I joined was that you actually have to rebuild glass furnaces every so often. I think-- I'm so used to discrete manufacturing from automotive and consumer products, I kind of forgot about this whole continuous manufacturing thing and what that might actually mean to the equipment.

So that's where my team comes in. Spend a lot of time on process engineering, what we can do more efficiently, what we can do better, what we can do safer. And so a lot of mechatronics work, as somebody mentioned, a lot of work in data analytics and constantly looking at how can we improve what we're putting out there.
MATTHEW POLAND: Excellent. I mean, I'm going to go in reverse order now and change things up. So I'm going to go back to you, Megan. What's something that people probably don't know about the manufacturing that you guys do? And, yeah.

MEGAN CHASE: Yeah. I think one of the biggest lessons learned for me coming in was the differences between discrete and continuous manufacturing. Certainly I was used to line stoppages, and needing to scramble and come together to fix problems and get lines back up and running. When you're talking continuous manufacturing, anything that goes wrong actually probably results in wasted product and lost product. You don't get to just shut a furnace down, right.

I think the environment I grew up in, I grew up with Matt in the Detroit area. My grandfathers all worked for automotive companies, mostly in the mechanical space. And so that's really-- the environment I grew up in was very mechanical-focused. What has surprised me is the strategy and the analytics that go into keeping a plant up and running, and really getting into what kind of data is actually useful. Just because you can collect it doesn't mean it's what you need.

And so really getting into what information is beneficial. And then how do we use that for preventative maintenance and keeping everything flowing. So I've been learning a lot in this space, and it's pretty surprising how much really goes into keeping it running.

MATTHEW POLAND: Great, thanks. George, I'm going to go to you now. Among the [AUDIO OUT] producer, what's something that people probably don't know about what you guys do, or what food and beverage, or whatever that you think is most interesting?

GEORGE COLON: I think we all remember when we were kids we watched Sesame Street and other TV shows and they'd show us [AUDIO OUT].

MATTHEW POLAND: What we might try, George, is doing without video--

[INTERPOSING VOICES]

GEORGE COLON: --happens. All right.

MATTHEW POLAND: If you turn your video off, it might-- maybe it'll work better. Maybe we should try that.

GEORGE COLON: [INAUDIBLE]. So that idea of manufacturers being loud, noisy--

MATTHEW POLAND: Yeah.

GEORGE COLON: --dirty is just not true. Most manufacturers are very clean, efficient, quiet. The advanced technology that we're working with now does [AUDIO OUT].
MATTHEW POLAND: I think what George is getting at there is the kind of misconceptions around what manufacturing is and what a manufacturing job is like. Anybody want to pick up on that?

ROBERT WEINMAN: I can pick up on that for sure until George comes back, man. I was really looking forward to the Sesame Street reference, though. I was kind of bummed we lost that.

MATTHEW POLAND: We'll come back to that for sure. Sorry.

ROBERT WEINMAN: Yeah, I think-- so just focusing specifically on semiconductor, I mean, just a couple of little tidbits. Most of our chips, it's about 3,000 steps in three months to make one chip. They are produced on a wafer about the size of a small pizza, and that's $700 coming in. It's worth several hundred k going out. So every one of those 3,000 steps can lead to a problem or a loss. We call that yield. That's our soft word. Megan, I know you're familiar with that.

And so it's a very intensive process. We really depend on our techs. And that's what I wanted to get to, is a lot of people know about the PhDs and stuff that design our chips and the process, but 30% of our workforce are technicians. And those are technicians who operate, maintain, and optimize the manufacturing facility, the tools.

One single tool could be about $300 million. And also the process, which Megan had mentioned.

The reality is, though, even though we're such a high tech industry, the technicians that we need, especially coming out of community colleges, and veterans programs, is that they need to have just basically universal but fundamental electromechanical skills and knowledge-- knowledge, skills, and abilities and safety, quality, and process and production. And tied into process and production is some fundamental skills in data analytics. So just like Megan had mentioned is they have to be able to utilize tools to understand what is noise and what is actual clear signal in the data that's actually going to help inform the process. Also, our PhDs and managers, they could really use a refresh on foundational skills, because their soft skills are long forgotten, if ever developed.

MATTHEW POLAND: George, if you're back, everyone is waiting with bated breath on the Sesame Street reference.

GEORGE COLON: Yeah, it was just-- I don't know if anybody remembers. It was a video of crayons being manufactured at the Crayola plant. And it seemed fascinating and wonderful, but it was also-- it looked-- it didn't look pretty.

MATTHEW POLAND: Right. And you're saying that's sort of the image that people have, but it's not quite that a lot of places in manufacturing.

GEORGE COLON: So sorry about that everybody. It's pretty frustrating.

MATTHEW POLAND: No problem. We'll work with it. I think we've been getting enough of the answer that, yeah, it's fine. Bryan, how about with you? Something interesting that people probably don't know about semiconductor manufacturing.

BRYAN SANCHINELL: Absolutely. Robert touched a lot on it. I would just add a few extra tidbits. I think as a society and as a country, we're becoming very heavily dependent on technology. And everything we touch, from dishwashers, to refrigerators that are smart, to smartphones have chips. And 87% of all chips are created outside of the United States. So it is becoming a national security concern that if we are not creating chips here, then we're going to be falling behind on just advancing everything.
Now, I just saw surgeons are using very high tech arm robots. Well, that's created by one of our chips. So if we want to stay competitive, we want to have advanced health, advanced automotive, we want to have self-driving cars, well, those are all created by the chips that we're advocating for. I think it's a very important need as well.

Matthew Poland: Yeah, it strikes me, Bryan, that clearly chips in electronics were a specific consumer product that's now starting to pervade pretty much every other industry and become-- yeah, so the chip-- like you were saying earlier, the chip shortage impacts every industry literally. And Megan, you touched on that too.

Bryan Sanchinell: And the part that I think is for the industry that we're representing is that we're not as wonderful like Facebook or Google. Everyone wants to work for a Facebook and Google, because they want to create the next application. But well, you need actual chips to make that happen. You need the things that really empower and enable that to happen. And it's a real opportunity, but a major risk if we don't address it.

Matthew Poland: Definitely. So can you-- and I'll go and start with you again, Bryan. Can you share your top-- or the industry that you-- the industry's top two challenges right now?

Bryan Sanchinell: Yeah. I'm going to do the easier work. I'm going to pass this to Robert, because we have-- we're going to ping pong this. I will probably answer what we're automating, because I'm much more in tune with that. Robert has been in the industry, is in the industry, and he knows intimately what the problems are. So I'm going to pass this to Robert.

Robert Weinman: Painfully. Yeah, so the two top challenges is we have a history of what didn't work, and I'll get to that in a second. And we're about to repeat that history. Those are our two top challenges right now. Going back to that, it's all about competency signaling. So competency, when I'm speaking about that, I'm speaking about knowledge, skills, and abilities.

And to give you an anecdote, GlobalFoundries was one of the largest construction sites in the world at one point. It's a large fab that was placed to build semiconductors, but it was placed in the middle of the woods in upstate New York. And it was surrounded by predominantly five community colleges and several school districts. And they try to signal. They try to do some due diligence and try to signal on what were the skills they needed for the largest segment of their workforce, which was technicians.

The problem is that as they did that, community colleges also went overseas and looked at other GlobalFoundries fabs. They went to Dresden, they went out to Oregon to study fabs that were out there with other manufacturers and they kind of drew some assumptions that, OK, we need to take everything we know and contextualize it for semiconductors. So they lifted up programs like semiconductor technician programs and stuff like that. And those programs ended up being under-enrolled.

They did fill a need on the very initial end of things, but they ended up being under enrolled at the later stages, especially if you have an organization like GlobalFoundries that's announcing hints that they might be laying off some workers. No student is going to enroll in that program if the largest employer is talking about they might be downsizing, or they're not sure if they've got the contracts, or things are going slower.
So over the next 10 years-- and I dropped into this at GlobalFoundries, and I dropped into this with some experience of what had happened out in Oregon, out in the East side of Oregon on the other side of the river of Intel where they had done the same thing 10 years prior, where they had developed semiconductor technician programs for Fujitsu and a couple of other manufacturers over there. And those programs dissolved as well and they were always under enrolled. And the thing goes back to what we were talking about earlier is that really what semiconductor needs across all advanced manufacturing, at least to start with, is that those fundamental skills, those fundamental knowledge, skills, and abilities. Then they can come into the employer and the employer can start to contextualize it for their industry.

And also the community colleges and universities can be a partner in that stage as well with doing further contract, non-credit type training, customized training. Or better yet, what we found has been an awesome tool for us is apprenticeships have evolved a lot. Anyway, GlobalFoundries learned that. It took them 12 years. It took the location in upstate New York to learn that. GlobalFoundries now has just launched an apprenticeship this last year in collaboration with us. They’ve reinvested in one of the community colleges that’s right next door to them so they can scale that apprenticeship. And they’re also going to expand it out to multiple locations. But we’re seeing something like this happen now.

That was in the middle of the woods. Now we're in the middle of the desert. You've got TSMC, the largest chip manufacturer in the world, Bryan had mentioned 87%, that's predominantly TSMC, which is Taiwan Manufacturing. They're going to be in Arizona, Intel is going to be in Arizona. Maricopa Community College has a great history of working with players out there and doing a really good job. We actually leveraged, in addition to the DOL competency models. We also leverage competency models that were developed by May Tech out there.

But the same thing is happening. There are these conversations with the employers and there's a lot of focus on semiconductor-specific skills. Really what we need is we need massive focus on the fundamental skills and then they can get contextualized. We have other employers that supply techs for that need that, too.

**MATTHEW POLAND:** Yeah. And so Robert, what you’re saying is the mistake was to make it too contextualized too soon in the program rather than starting with the fundamentals, because then when that specific semiconductor manufacturing job wasn't there--

**ROBERT WEINMAN:** Yeah.

**MATTHEW POLAND:** Then that kind of sunk the program [INAUDIBLE].

**ROBERT WEINMAN:** And just to throw back on that, and Bryan is going to get into this later, but we really need a streamlined, automated process of signaling what are the true competency needs. And that's something that Bryan is going to talk about. And a lot of that was automating some of these competency models that are out there.

**BRYAN SANCHINELL:** Just think about that. I mean, Robert and I have been on the community side-- community college side of it. How do you even signal to a student to join your program when you have news saying that maybe we’re going to lay off folks? You want to commit to a two year program and by the time you're done, they're not going to have a job. No one wants to join that program. And no amount of marketing and no amount of communicating is going to work with that.
And this is something that when you signal or you train for fundamentals, now the students have options.

ROBERT WEINMAN: They can pivot.

BRYAN SANCHINELL: They can pivot easily and you can actually have a good amount of enrollees into a community college. So it just is about to happen. $30 billion is about to be built into Arizona right now, and they're about to build another-- a whole massive infrastructure. So it's quite amazing.

MATTHEW POLAND: George, if you're able to, I want to bring you back in on this same question on challenges for the subsector of manufacturing that you're in. You're primarily food and beverage. There you are.

GEORGE COLON: It's all very similar to what Bryan and Robert have shared. It's a misunderstanding on the part of the employer sector, and we're talking about manufacturers here, that they haven't communicated properly what skills that they need and they don't seem to often understand how transferable skills play into that.

On the other side of the coin, we're actually dealing with the concept of a skills gap when really we feel it's an opportunity gap. If you give people a chance to learn who are willing to learn, they would very likely be successful in the roles that they're being provided at any particular manufacturer. So what we're dealing with right now is-- the biggest issue is people don't want to work in the industry.

They feel like they don't have the skills, because employers aren't communicating how transferable skills apply, what skills are necessary, room for training opportunities. And so job seekers are looking at these jobs and not seeing themselves as a fit, when in reality, they actually could be if they were just given the opportunity to try it out and somebody at that employer was willing to train them.

MATTHEW POLAND: Right. Right. Megan, are you seeing something similar in your neck of the woods in manufacturing?

MEGAN CHASE: Yeah. And I was just taking a couple of notes because everything's sounding pretty familiar. So skill gap, and I think building a little bit on what George is talking about, it's not unique to Owens Corning, certainly in other industries as well, but we have an aging workforce as well. We have a really large proportion of our manufacturing workforce that's aging out. And so we have to get people in now, because we have to train while we still have the folks that are able to do that training.

We don't need somebody to come in having glass making experience. That's not relevant. That's so specific. But we need them to have some problem solving skills, some knowledge of mechanical and electromechanical equipment, and then we can teach them the specifics. But again, we need to do it now while we have that window of opportunity and pair up the people that are willing to learn with the people that are willing and able to teach.
The other part for us that I think was a little bit of a wake up call, and again probably not just for us, supply chain disruption. I think that we have-- the three companies that I've worked for have all been global in nature, probably a little bit more multinational meaning that they don't always fully leverage the global peace, and there's some redundancies. I think what we're finding with some of the climate impacts that we've had, such as ice storms in Mexico and Texas earlier this year, what we found with COVID, which brought the entire global economy to a halt in some cases, we're seeing that in order to keep our supply chain safe in both directions, there are some things that we have to serve locally, even if it is a global company.

And I think Bryan and Robert talked a little bit about that with the chips. So making sure that we really are producing the right materials in the right locations. And again, some of that's done at strategic business level, but some of that's also done at the plant level, really understanding the customer's needs, understanding what the customers are anticipating, and a lot of that comes from the plant folks. That doesn't come from the folks sitting up in a corporate office somewhere.

MATTHEW POLAND: Yeah. Is there-- so this question is for you, Megan, and/or anyone else can jump into it. Are we starting to see a major shift in how the supply chains for manufacturing work or what they're going to look like going forward? Because I imagine there's companies seeing the opportunity to be like, oh, I can set up shop locally, because they're not getting what they need from China. So is that-- are we seeing that happening?

MEGAN CHASE: A little bit of that. And obviously if you're talking manufacturing and you don't already have the footprint, it takes some time to make that pivot. Luckily I think we had some good things in place that now we're restarting plants that perhaps had been shuttered because we realized that actually that's the best location to have the product produced.

And then I think from a people resource supply chain perspective, all of a sudden, I had a project in China last year that I couldn't get on a plane and go to the manufacturing plant, nor could anybody on my team. And so I think again we're part of a global organization and there's certain things that we can do remotely and certainly virtually with a lot of different tools, including things like Teams. But there are some things where we're learning we have to have some regional support in place, because we may not be able to get into the countries and support the plants the way they need the support to be produced. Yep, pretty big changes coming here.

MATTHEW POLAND: Yeah. Anyone else want to jump in on the supply chain situation?

ROBERT WEINMAN: I did want to just throw out there, Megan, we totally reinforce that. So the National Institute of Innovation and Technology, I mean, three thrust areas that we have I think Bryan mentioned. One is supply chain. The other one is next gen communications. So as we're looking at OTIT and IIOT. That includes cybersecurity, both fundamental knowledge of cyber security and cybersecurity strategies. And then of course, what we're talking about today. Workforce is a great threat. So those threat-- or like George said, threats and opportunities, right. All three of those are areas where we see great opportunity.

MATTHEW POLAND: Yeah. George, just want to give you a chance to comment on that if you have your manufacturers talking about supply chain issues, or the changes in what's happening there, too.
GEORGE COLON: If we're going to focus when it comes to SFMade on food and beverage, our local manufacturers have typically depended on the local supply chains, and they pride themselves on depending on local supply chains. That's-- I'm not going to say that's a Bay Area thing. It's something that does seem to breed in this area.

But the pandemic has really made it necessary for manufacturing in particular to seek different sources for where their supplies come from, where the resources come from, because things have become unreliable or just unavailable. And it shines a light on how we've been operating as a country for a long time when it comes to the importing of materials and how we really can do things right here at home and make adjustments so that costs don't go through the roof.

MATTHEW POLAND: I do want to ask one-- we're coming up to the Q&A real quick here, but I do want to ask one more question before, and then I'll turn it over to Q&A for the audience. And that has to do with how you guys approach talent development, or how you're-- or the companies that you guys work with approach talent development. George, I'll start with you, since I haven't-- and that's-- I know that's what you work on with SFMade manufacturers. Do you want to start in commenting on that?

GEORGE COLON: Yeah. We're taking the approach of educating and informing the manufacturers, the businesses. So we're helping them understand that they need to put systems in place that are more supportive of a diverse workforce. They have to have handbooks that speak to-- employee handbooks that speak to how they support, how they encourage, and how they promote from within. They need to have all these things front facing, and not changing, and regularly communicate them to their current employees and to people that they're on-boarding. We're also connecting them with local workforce organizations directly.

This is something that-- we have hundreds of workforce organizations here in the Bay Area. And it seems like employers, not just manufacturers, would prefer to use LinkedIn, and [INAUDIBLE], and Craigslist, and even sometimes staffing agencies over picking up the phone and calling a local workforce organization that is not only free, but provides a multitude of secondary benefits aside from sourcing talent. We're connecting these organizations directly to the employers, making introductions, helping in the assistance of creating a partnership and developing a relationship so that the employers can hire from these organizations, have support for the individuals that they hire from these organizations, and also support organizations on how they can do better when it comes to retaining employees and seeing their staff succeed. So that's been our model for the last few-- about a year now.

MATTHEW POLAND: Thank you, George. Megan, can I go to you next sort of on your current approaches for talent development.

MEGAN CHASE: Yeah. I think on the more corporate side I think I'm seeing a lot at Owens Corning similar to my other companies where we've got these rotation and training programs in place for salary employees. Within the manufacturing plants, though, that hasn't always existed and it's starting to. And it's starting to because it absolutely has to.

I think George touched on a really important part, which is we don't just need capable employees, we also need to really broaden the diversity of the employees we're bringing in and people need to feel supported if we're actually going to do that. So really changing up how we do things, not relying just on LinkedIn and not just relying on people to come to us. We need to do some legwork. We need to make those connections with the employment services that are out there.
We need to make connections with the community colleges and training programs that are available. And so it's--
I don't want to speak totally for HR, because that's not-- I'm not as connected to that. I know, though, that just
based on the things I help out with recruiting we're heading that way, because we absolutely have to. I'm really
glad that we're doing it. I'm sorry that we're doing it so late.

**MATTHEW POLAND:** Yeah. Well, thank you Megan. And Robert or Bryan, the industry folks you guys are working with in semiconductor
and technology, are any of them doing apprenticeship programs, or you get feedback or anything on
apprenticeship, or [INAUDIBLE] because as you know, the audience, everybody is working on apprenticeship
programs.

**BRYAN SANCHINELL:** Robert has put up a couple of them on the chat here. I think he was just talking about the IMT apprenticeship
work that we've done with [? Mackney ?] and GlobalFoundries in upstate New York. So we've definitely worked in
that way. One of the things that we're doing to sort of broaden the pipeline is-- and this is what excites me, is
that we're really trying to create an equity opportunity here.

This is an opportunity to bring in folks who were underrepresented in the industry, and we're focusing on the
lessons learned that Robert mentioned before, and we're taking the two major signals and we're trying to clarify
them. So from an employer end, it's the job description. Most of the time who knows how long this job description
has been around? Who knows if it's dynamic, or even updated? Who knows if that's exactly what the hiring
manager wants? It's just something to put up on Indeed or LinkedIn.

And then from the college end, it's the course, course descriptions. And what we're doing is we're in the middle of
beta. We're creating a solution that ties those two signals together, utilizing the unified competency model. Our
goal is to create a dynamic tool that tracks frequency, tracks impact, and tracks the usage of these
competencies. Because at one point, we want to get to a point where a employer has a job description and they
know what the gap is between their job description and the course offering.

Right now we don't. No one has that. No one knows if your course is a one-to-one match with your job
description. And utilizing the unified competency model, we are allowed to sort of peer into that and it being
data-driven, which is not what is utilized now. So that's what's exciting, because we're in the middle of beta.
We're in upstate New York, we're in North Carolina, and we're in Oregon. Those are our pilots and we're testing it
out and we're seeing how that works.

**MATTHEW POLAND:** Yeah. So it sounds like this is working on the competency signaling we are talking about earlier, that this will help
employers better signal to the workforce and community what they really need and not what was in the job
description 10 years ago that's been cut and paste over the last 10 years.

**BRYAN SANCHINELL:** Absolutely.

**MATTHEW POLAND:** Right.

**BRYAN SANCHINELL:** Which is common practice. It's crazy how common practice that is.
ROBERT WEINMAN: I think both Meghan and George informed some stuff too. So all of the data in the world, one of the things we're trying to do is just clarify the signal that's out there. There's a lot of work being done on this in many different-- the US Chamber's working on some very large projects and large collaboration on this. There's the OSN, Open Skills Network, that's working on this, there's Credential Engine. There's a lot of people looking at this and awesome, solid work.

One of the things that we see that everybody is struggling with is we need good frameworks. There's over 200 competency frameworks out there, I mean, if you just started browsing. And that's why we kind of landed ourselves at the DOL and we said this has got good bones. We just want to work on it. We want to help automate it, we want to help inform it.

And so that regular business, as usual, as an employer posts a job, there's a profile behind that so that every time you post a job, that's signaling back to those competency models and we're finding out what competencies are relevant and what not. But we also want to step back a second. Signal's really important. That's how we begin a conversation. But then going back to what George and Megan said, then you need to talk about it and contextualize it for your location.

Are there other dynamics? So having an agency such as-- organization like George's organization, they can say, OK, let's talk about this. They can look at the data, how the jobs align with the training programs, and how the jobs align with individual profiles. Do we have a work-ready community? But they can also thread into that other aspects of support, wraparound support for if you're going-- you're targeting a specific under-served population, how do we make sure that they're a good match for the job? But then also how do we reinforce retention?

MATTHEW POLAND: Yeah.

ROBERT WEINMAN: There's a lot of work out here. But I mean, looking at who's on the call and stuff here, we can see-- I'm familiar with a lot of these names here. And yeah there's a lot of solid work happening. We're just-- our real goal here is to build a machine that helps unify some of that so everybody's good work is being collected and tracked. And then we're going to go through it, just like Megan said, and what's signal, what's noise, so we can do a better job.

MATTHEW POLAND: I'm excited.

GEORGE COLON: I want to follow up on what Robert just said, with something really important to that--

MATTHEW POLAND: Sure.
GEORGE COLON: --thought. And that's there are no half measures. We cannot do this part way. No I've done that before and it didn't work. We're talking about human beings and we're talking about opportunity for them to succeed and sustain employment, and sustain themselves, their families, whatever that their needs are. These past excuses reasoning that employers sometimes give about why they're not willing to do something, or why they're challenged by something, and an unwillingness to adapt and to make changes to be more conforming and appreciative of your staff and the people that you're bringing on, it's just not going to work any longer. You're going to start seeing massive negative effects of those mindsets very, very soon.

ROBERT WEINMAN: Yeah. And to that point, I mean, productivity per worker has grown tenfold, especially in advanced manufacturing. Part of that is through automation, but part of that is that people are doing the work of three jobs instead of one now. So just to kind of give a little nudge back to employers is working closely with these teams, we understand that they are so maxed out that they have those high aspirations that George is mentioning. And what we need to do is give them a way that it's integrated into work that they're already doing.

They're desperately trying to find a workforce. They want to do it the right way. They do want to retain, but they-- sometimes the resources-- and we're hoping automation is one of those where we can help integrate it into job postings process that they're doing already. And also when they have a conversation with a community college about matching their program to a job, it's not just isolated in that bubble. It's actually data that can be shared and leveraged in a way that it can be shared with all the community colleges in that area.

And then we have a lot of traveling techs in our industry. It can be shared nationally so that community colleges and universities can be looking at that data and saying, OK, hey. Arizona is popping and we anticipate that's going to be massively popping once they get the fab up. So we need to think about what's our opportunity there. But yeah, I appreciate that comment George.

MATTHEW POLAND: Yeah. No, thank you, Robert. It's all really great information. And originally I was going to have the participants debrief, but we haven't even gotten to Q&A yet. So I want to make sure we get some questions in. So as long as everybody's OK with saying on, and we have about seven more minutes left. If you have a question, please drop that in the chat. We'll do our best to get to a few of those before the top of the hour. And I'll probably just kick the question to one or two of you so that we can get to a few questions. So please put your question in the chat and we will get to as many of those as we can.

We have to have that first person that's bold enough to put their question in the chat. So let me ask Megan while we're waiting, and I didn't get to this question for everybody. Are you guys automating processes? Or how is the-- how are you approaching that, or what does that look like? Especially in the workforce components of it.

MEGAN CHASE: Yeah. So I actually operate underneath the advanced manufacturing umbrella. And so we're always looking at OK, what does the future hold? What can we do better? What we're automating is things that improve quality and safety. And ergonomics. So where there's repetitive-- where there's repetitive motion, or heavy lifting, even if it's assisted, those are the kinds of things we're really looking at automating.
There are a lot of things in our space, including tying knots on fiberglass strings. We can't afford robots with that kind of dexterity. There's no line of sight to automating some of what we need to do. And so it's where can we make the jobs safer, basically, and more sustainable. Because if you've got people getting tired, or getting hurt, then not only is it awful for them, it's really unacceptable. But then they're also not able to really focus on quality, and inspections, and things. So really making sure that the jobs are designed for people to be able to do them long term and to keep building on their opportunities.

MATTHEW POLAND: George, do you have folks that are automating? And what does that look like, if you do, among SFMade.

GEORGE COLON: Yeah, it's definitely happening, especially in the advanced manufacturing sector. The great part is that we have such a close connection with a lot of these manufacturers that we're understanding how the needs for potential new employees are changing. So yeah, a process might be automated, but that just means that they need somebody who can operate the machine, or maintain the machine, or operate the computer that runs the machine. So we have a training program that that's adaptive that we reach out to local employers to understand what their needs are, and what their challenges are, and what we can teach to job seekers so that they remain valuable to the sector, regardless of changes in the automation process.

MATTHEW POLAND: Yeah. And by the way, shout out to Jim for having up a photo that's totally appropriate for the conversation with robots and the like, what looks to be a laboratory of some sort.

ROBERT WEINMAN: I think that's from Dexter's Lab, or Powerpuff Girls. One of those two.

MATTHEW POLAND: Yeah, I was thinking Dexter's Lab, actually. Yes, I was thinking that. Yeah. Yeah, so any last-- how about we turn any last comments or thoughts that you guys didn't get a chance to share, we didn't get all the questions on the list that I sent you. So anything that you guys still want to add or note before we go?

ROBERT WEINMAN: I'll try to keep short. I've been kind of long winded, but I definitely would invite folks that are on this call to reach out to us, because as we're going through this process, I think Bryan might have mentioned our portal is in beta development right now. So alpha, we did do a prerelease with some partners. But beta release is happening now in that development phase. So not just in how we utilize those competency models, but also what are some best practices that some of the partners on this call have discovered sharing that with us so we can look at how to integrate that. I mean, I've learned a lot from George today definitely that we want to get a little bit more deeply involved with the organizations and associations that can provide more some of those wrap around information and services too.

GEORGE COLON: Yeah, I always loved these types of panels, because I end up learning a whole lot as well. We had a prediscussion prior to the panel where we talked about it's very important for everybody on the call to understand that internships and apprenticeships are completely different things. Please, please make sure that the differences. And when you're working with an employer, if they don't know the difference, please help educate them as well. Apprenticeships are actually really critical to this industry. They help the job seekers just as much as they help the employers. And I think there's a lot of benefit in continuing the model as long as it's done properly.
ROBERT WEINMAN: Yeah. And to that point, I mean, apprenticeships have definitely become much more streamlined and there's some really good standards out there now to leverage. So we've discovered that and kind of just grab that opportunity. And not to forget pre-apprenticeships as well, reaching that high school demographic. Or even veterans. We're developing a fellowship program for veterans so that we can honor the skills that they have and get them advanced through those apprenticeships faster. And that leads to earlier net gain for the employers that hire them, too.

MATTHEW POLAND: And let me ask too. Any tips for this audience on connecting with manufacturers? They're all out there pounding the pavement talking to manufacturers trying to hold the fidelity of the apprenticeship model up. But how do they get in? How do they communicate to support talent development in manufacturing?

GEORGE COLON: Silence.

ROBERT WEINMAN: I mean, when I was in community college a great vehicle just to get in there and started having regular conversations was finding some of the-- a core group of employers that really saw the value in the community colleges and wanted them to succeed and be relevant, but to go in there on the non-credit side and really get some customized training involved for them. But at the same time, that opens up the conversation for their on-boarding, their recruitment, what are they doing out there. And hopefully the region has funding to help support some of that non-credit training as well. So I mean, something as simple as an OSHA 10 class for smaller employers is a great way to get in the door.

MATTHEW POLAND: All right. And so-- go ahead, George. Last comment then I'll have to wrap this up. We're at the top of the hour, but yeah, please.

GEORGE COLON: I was just going to say, I actually have to talk to students learning about entering the manufacturing industry right now. So I have to jump off. It was a pleasure.

MATTHEW POLAND: OK.

GEORGE COLON: Take care.

MATTHEW POLAND: Take care. Yup, thank you everybody. Bryan, George, Robert, Megan, thank you so much for joining us and sharing with it. I hope everybody in the audience got something out of this we. Will release a recording. We'll also have a write up on this that will be posted up on WorkforceGPS in the next few weeks. Again, thank you everybody. Enjoy the rest of your day.

BRYAN SANCHINELL: Take care.

ROBERT WEINMAN: Thank you very much.

MEGAN CHASE: Thanks, everyone.
MATTHEW: Thanks.