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SKILLS & INDUSTRY: A NEW AMERICAN MODEL

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Welcome:

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Panel Discussion:

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Senior Director for Policy, Washington Center for Equitable Growth
Former Senior Fellow, Governance Studies, The Brookings Institution

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Senior Director, Talent Acquisition
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Dow

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P R O C E E D I N G S

MR. JANES: Well, ladies and gentlemen, I'm Jack Janes, and I'm the Director of the American Institute for Contemporary German Studies, a partner organization, together with Brookings, our big neighbor here. And we are an institution that's affiliated with Johns Hopkins University, but we are very privileged to be in the Brookings Annex.

And I'm particularly glad that we can do this program together. Actually, it's the first time -- Alan and I were just talking about it -- that we've been in this building since 2004. So, it took us about 14 years to work out a good program together, but here we are, and it's a great way to do it.

I wanted to, first of all, thanks to everyone -- Alan and the Governance Studies Program, and the Metropolitan Policy Program -- for working with us. And, by the way, this is something that is going to continue on throughout the year and into next.

We have a theme this year that we're working on -- how our state and local leaders are shaping the future workforce, which is where much of the action takes place. And we're very glad to have representatives from the state, and city, and local communities from Germany -- and various different places in Germany -- and U.S. leaders from nine different states.

We're going to conclude our sessions tomorrow with a keynote by Governor John Engler, the former Governor of Michigan -- and now the President of the Business Roundtable.

We're a big believer in learning communities at AICGS, and the importance of educating the future workforce is probably key on both sides of the Atlantic.

As you all know, the German dual model of education and training is a success story in many different ways. Germany boasts one of the lowest unemployment

rates for youth in Europe, and has seen -- and I just was reading on this on the way back from Frankfurt last night -- an incredible increase in migration. As a matter of fact, per capita, Germany is now the second, in terms of immigration flow, second behind the United States. Who would've thought that a few years ago?

AICGS aims to highlight these best practices from Europe in establishing a new model for the United States, but, also, to explore how and what can be transferred from Europe -- Germany in particular -- across the Atlantic.

So, we are announcing, with this new program today, a new AICGS research prong initiative with the support of both the Alcoa Foundation, as well as the Robert Bosch Foundation. And we're going to be comparing the apprentice models throughout Europe and the United States, and we look forward to contributing to the AMP 2.0 research agenda, and to future cooperation with Alcoa, Bosch, Dow, Siemens, other people that are gathered here -- but, most of all, our partners and our neighbors, Brookings.

Alan, the floor is yours. Thank you very much.

MR. BERUBE: Good afternoon. Welcome to Brookings. My name's Alan Berube. I'm a Deputy Director here at the Metropolitan Policy Program, and we're very pleased to be co-hosting this event with Jack and his colleagues at AICGS.

And, in fact what Jack didn't say -- we're neighbors, but AICGS is actually on the seventh floor, between the two Brookings programs that are the co-hosts for today's event -- the Metropolitan Policy Program is the sixth program, and the Governance Studies Program, on the eighth floor.

So, on behalf of the Metro Program, I want to thank the members of our Metropolitan Leadership Council, for their support of the work that we're doing on skills and industry, and to thank my colleagues in particular -- Martha Ross and Joe Parilla --

for all the work they've done to bring together today's discussion.

We have a really terrific panel set to follow my brief remarks. It's going to be moderated by my erstwhile colleague, Elisabeth Jacobs, formerly of the Governance Studies Program.

So, let me just offer at the top some brief context for how we, as the Metro Program at Brookings, come to this discussion today. And I want to motivate it with a short story from the State of Kentucky, which, I can assure you, has nothing to do with Mitch McConnell, or Alison Lundergan Grimes, or any of the Kentucky stories you've probably seen too much of this week.

Back in 2011, the cities of Lexington and Louisville, Kentucky teamed up to create an initiative that they call BEAM. It's the Bluegrass Economic Advancement Movement. And our program actually worked with BEAM over the past couple of years to produce an assessment of the regional economy, which actually revealed very strong assets in manufacturing, but lagging growth in the region in productivity and employment in that sector.

So, based on that assessment, BEAM actually launched an economic plan to position the Louisville-Lexington region as a world-class center for advanced manufacturing. And central to that goal was developing a skilled workforce equipped to meet the demands of 21st century industry. And, thankfully, the region actually -- it wasn't just a plan; they actually put their money where their mouth was.

So, they stood up a new Kentucky manufacturing career center in Louisville in 2013, and that center offers a set of stackable credentials for workers who are interested in manufacturing careers. We had large employers in the automotive industry, like Toyota and others, outside of Lexington working closely with local community and technical colleges to help high school graduates earn while they learn

and gain access to good jobs and careers -- and then coming in behind all that, the State of Kentucky providing critical support.

Just a couple of months ago, Governor Beshear and the German Embassy to the United States launched what they're calling the Kentucky Skills Initiative. That's a program that aims to take the best from Germany's successful dual vocational educational model, to help them expand apprenticeships statewide.

So, I highlight this because this is actually just one example of a trend that we're beginning to see take hold in metropolitan areas across the country today that are rediscovering the importance of advanced industries -- and, particularly, advanced manufacturing for economic growth and broad base prosperity.

Well, why is that? So, what we see from our recent work at the Program -- and some work that, actually, we did with McKinsey & Company -- we've identified 23 industries in the United States that are distinguished by two things. One is above-average investment in research and development, and the second is heavy employment in -- of skilled STEM workers.

Across the board, when you look at these 23 industries, they continuously punch above their weight in the things that we think really matter for growth and prosperity. For instance, they account for 11 percent of U.S. gross domestic product, but they actually account for 80 percent of private-sector R&D and 1/3 of all U.S. exports.

Together, they provide about 7.5 million jobs, but then they actually support another 5 million jobs in their supply chains, plus nearly 4 million more jobs in the community where they sit. They pay their workers very well -- an average of \$94,000 annually. That's twice the average in other industries, and nearly half of the jobs they provide are actually available to workers who have less than a four-year college degree. And some 17 of those 23 industries are in manufacturing, which is the subject of our

discussion today.

So, in short, we see advanced manufacturing, really, as the nation's industrial innovation sector. And making things is really critical to our ability to innovate, which, in turn, is really the key to achieving rising standards of living for our population. He agrees.

As many states and metro areas are discovering, though, these industries are not going to grow and succeed in a competitive global economy based on private initiative alone. They're coming to the same conclusions as Louisville-Lexington did -- that our ability to attract, to retain, and to grow advanced manufacturing in the United States means supporting the inputs these firms need to compete -- and not compete primarily on cost, but to compete on quality.

And at the same time, these places are facing other forces, like the overhang of a recession that dislodged scores of young people from the labor market. Today, only 6/10 young adults and just 1/4 teens have a job. Those are post-Depression lows. So, workforce skills, particularly for young people, are emerging as a central concern in region after region across the country. And that concern is giving rise to creative new partnerships between industry, government, and educators -- the promise to enhance growth and to address pressing issues of inequality and opportunity.

And that, indeed, is precisely why our program, as part of our Global Cities Initiative, is going to take a delegation of leaders from an array of different U.S. metropolitan areas to Munich, Germany later this year, where we hope they will see firsthand the German model of vocational education and apprenticeships and gain practical advice for designing locally-led, distinctly American approaches for connecting advanced industry employers to schools to young people, to promote opportunity and competitiveness at the local and the regional level.

And those strategies are really at the heart of the challenges that the Advanced Manufacturing Partnership is tasked with tackling. So, we couldn't be more pleased today to have representatives from three of the leading industry members of that partnership with us.

So, without further ado, I'm going to turn it over to Elisabeth Jacobs to lead what I know is going to be a spirited and informed discussion.

Thank you all very much.

MS. JACOBS: Great. Well, I will take this moment while everyone else is getting mic'd up to do some introductions of our fantastic panel.

I want to start by thanking Jack -- and thank Alan -- for a great introduction.

As Alan mentioned, I, until two weeks ago, was a Fellow in the Governance Studies Program here at Brookings, working on, amongst other things, workforce development policy.

I am now the Senior Director for Policy in Academic Programs at the Washington Center for Equitable Growth, where I will continue to work on these issues -- but, also, more broadly, issues looking at inequality and its effect on economic growth. So, obviously, workforce development policy is a piece of that, and I'm really glad to be back here at Brookings. It feels like I never left.

So, thank you all. And without further ado, I will introduce our panel. I'm really excited to have a group of industry representatives here. I come at the workforce development issues as a policy person and as a former academic, so it's not often that I actually get to sit on stage with people who are very deeply rooted in industry and looking at things from a business perspective.

There's often, like, one business person, but to have kind of a full

immersion in how business is thinking about this, I think, is hugely important, because, as I'm sure will come out over the course of the panel, business is an incredibly important partner. So, I'm glad to have you all here.

Starting all the way on the other side, I have Mike Brown, who's the Senior Director for Talent Acquisition at Siemens North America. Mike leads the professional, technical, and university recruiting efforts across all Siemens businesses in the U.S., Canada, and Central America. He owns the strategic planning and operational execution of all talent acquisition services for a diverse set of business units, both within Siemens North America -- it impacts over 60,000 employees.

Prior to joining Siemens, Mike spent three years in Executive Search, and held senior HR positions for over 20 years in the wealth management industry.

Next, we have Greg Bashore, who's the Director of Humans Resources for U.S. Primary Products and Global Primary Products for Alcoa. Greg leads Global Primary Products' Talent Strategy and Human Resources business partner support for the Alcoa Materials Management, Energy, and Global Primary Product Centers of Expertise.

He brings over 15 years' experience from the former Signet Bank, from KPMG, Peat Marwick, and from Progressive companies.

And then, finally, we have Lisa Skaggs, who is the Global HR Workforce Pipeline Director for Dow. Lisa's responsible for designing, leading, coordinating, and executing corporate-wide Workforce Pipeline-related projects. She's also accountable for the identification and successful execution of management-initiated programs, enhancing Dow's future Workforce Pipeline, including global STEM talent development and the Advanced Manufacturing Partnership 2.0 in the U.S.

Skaggs joined Dow 15 years ago in Workforce Planning, as part of the

HR Rotational Program, and has steadily worked her way all the way up to where she is today, which is amazing.

I also want to note that she has a past leading the Personal Annuity Division of TIAA-CREF, which, I imagine for many in the audience, is near and dear to our hearts. They manage the retirement money for a lot of people in think tanks and academia. So, thank you -- I think. We'll see.

So, I thought I would start by giving each of our panelists a chance to just tell us a little bit more about what your companies do, what your role is, how you handle recruitment, hiring, and training. There may be some people in our audience who are familiar with this, but I know that I'm not, so I like to ask the questions I want answers to. It's my job as a moderator, so I'll let you each jump in there.

And you can go from right to left -- left to right -- whoever wants to start.

MR. BASHORE: So, I'll talk a little bit about Alcoa just for a second -- just so you have a good sense of what Alcoa is.

So, Alcoa, from a scale standpoint -- it's about \$23 billion in revenue, 200 locations, 30 countries. And we're actually moving from a commodities-based business -- so you hear a lot about mining and making raw aluminum, so to speak. But we're moving into, really, a highly-engineered light metals type of a company, okay?

So, we have everything from mining, refining, to smelting in our upstream. We have a midstream that does a lot on world products. And if you see a lot of recent press, that's where we have a lot of new business coming in -- and the aluminum-intensive F-150, if you've seen that.

We also have a group called Engineered Products and Services, which about \$4 billion of that is aerospace. So, we're heavily into aerospace, whether that be from fasteners, to wing skins, to other components within the aerospace frame. So, very

much an integrated company, very much global, 60,000 employees. And, quite frankly, in the midst of transforming the company.

So, that's who Alcoa is, kind of in a nutshell.

From my perspective, for me personally, I've been with Alcoa 15 years. I've worked in all of the groups, and I've actually held talent roles and HR Director roles across all of the groups.

So, what we have is -- I think we have a pretty structured model in the U.S. from a recruitment standpoint, but I think it's fragmented on a global basis. It's different by region, and different by regional needs -- which is typical of a global company.

And then if I think about kind of what we do, what we do well, and what might be an opportunity, I would say that I think we have some good local strategies inside of Alcoa about how to staff plants locally and specific needs.

But I think our biggest gap -- and I think it'll be a theme for Siemens -- and probably for Dow -- is, we're really working hard to change the mindset from thinking about talent just in time to more think about pipelines, and how we grow sustainable pipelines. And I think that's a direct -- that is a direct difference to the European model, especially Germany, where I think it's an opportunity for us overall.

MR. BROWN: Yeah, I'll jump in here -- Mike Brown -- been with Siemens now for five years. I'm hesitant to say what businesses we're in, because I haven't checked my phone in the last five seconds.

So, I think we're still in the -- now we -- obviously, a diversified industrial company -- very large, very complex. We're in the process of reorganizing from four sectors into nine divisions. It's easier to describe the things we don't do than the things we do -- so anything from diagnostic equipment that you see in a hospital to locomotives

that may have towed some of you here today on Amtrak.

So, we've got 60,000 employees -- rough numbers -- in the U.S., a multitude of both professional jobs and manufacturing jobs -- over 100 different manufacturing sites here in the U.S. And I think, like most of our global counterparts, you're seeing more of an interest in moving some of that manufacturing work to the U.S., given a lot of conditions that exist now to make that, you know, sort of a window that we need to take advantage of. And I think we're trying to do just that.

As a German company, you know, we have the benefit of learning from our partners over in Germany. And I think that it's fascinating to have these conversations, and we're -- and Greg will talk a little bit more about this later, but Lisa, Greg, and I are working together on this Advanced Manufacturing Partnership work we're doing together with the White House. And so we've gotten a chance to really sort of, you know, get to know one another, and talk this through a bit.

And, you know, it's amazing to me that, you know, in Germany, there are, at any given point in time, 10,000 apprentices working for Siemens. There's an entire department of people that -- whose only focus is to work with the businesses, with the state, and with the educational institutions that provide the skilled work.

I was in Dusseldorf a few weeks ago to see some of the direct application of that work, and so when we talked to them about difficulty in building a pipeline of skilled talent, their first inclination is to say, well, why? You know, how hard can it possibly be? You just open your doors, and there's 10,000 young people ready to come to work. I'm like, well, it doesn't work that way in the United States.

So, internally, one of the things that we're doing is trying to share best practices a little bit more. And one of the themes that I think we'll get into a little bit later is that the mindset of companies does need to change. And the focus I'll put on this is

that HR professionals like us also need to change.

You know, the preferred method for hiring people has been this just-in-time, plug-and-play mentality. If you need a fill-in-the-blank, you go out and find one. And if it's too hard for your internal talent acquisition team to find those people, then you pay an agency to find them. And you've outsourced the issue. You pay a little bit extra, but you still get the people you want.

But when the supply goes away -- which it has -- then that becomes an unsustainable model. And like most organizations, we're all a little slow to wake up to that fact. And now the factories are starting to realize, uh-oh -- we just got this big Amtrak order. We need lots of welders. Where are we going to find them, and how?

And we can't get them from the agencies anymore, because they don't exist. Now we have to rethink the mindset of, who do we partner with, and how do we build that pipeline?

So, you know, we hire and train a lot of people here in the United States, but our primary focus has been, like most of the other companies, to hire people that have experience, because the things that we do are so complex that many of the jobs don't lend themselves to people that don't have enough experience.

But the whole mindset is starting to shift. It's shifting for us in the United States by necessity, and the company itself is starting to approach this differently.

MS. SKAGGS: Well, I don't think I have anything else to add. We --

MS. JACOBS: No, we're done. I --

MS. SKAGGS: No, I work for Dow Chemical, and I think, you know, we have about 46,000, 50,000 people worldwide; 26,000 people in the U.S. We are, you know, a mixed business, basically centering on, obviously, chemicals.

I think I'll jump right in, you know, with things that work well for us. We

have a very structured program for universal recruiting in the U.S. I think many of our companies do. We do it well. We have great relationships. We know how to build those relationships, and we know how to tap into those students -- and, of course, as we all know, there's a lot of shrinkage in that space when it comes to the talent to do into the fields that we need within our company.

On a local basis, we are finding, again, a lot of shrinkage in that space, as well, from a skilled development perspective. With all the growth that we're doing, particularly in the Gulf Coast area of the U.S., we are -- we can find workers today. We're not going to find them tomorrow, and we know that.

And so we're working really hard in the space of developing not only relationships that we already have, continuing those relationships with all local community colleges, but finding other ways to source and find that new talent -- and to partner with the colleges to train them -- help train the workers so that they can get into our crafts -- our welders, our industry and electrical technicians space.

We were short 50 folks just in the I&E space a few months ago. And we -- through that process alone, and through that identification of that shortage, we realized that we are the same as other companies -- have been sourcing for the immediate needs and not the long-term fits with our company. It's not looking for the talent pipeline.

And so our whole goal and focus has been moved forward, and the creation of the world that I'm in today is to focus on creating that talent pipeline for the future -- and partnering with the appropriate, you know, industry and institutional groups so that we can fill the pipeline as we continue to have the gaps in our space -- skilled workers.

MS. JACOBS: Great. I want to come back to the pipeline issues, but I think a related point to this conversation before we move on is, I hear all the time -- I read

all the time from industry people saying we can't find the workers that we need -- but right next to that story in the newspaper is the story about, you know, persistent high unemployment, particularly youth unemployment.

So, how do you square that from your perspective in business? What kind of -- how do those two stories both appear on the front page of the paper every day?

MR. BASHORE: Well, I'll chime in again. I think, for me, it's a labor pool issue and an awareness issue, right? Because, on one side, I think there is people that are unemployed, which is very true. And then on the other side is the demand. And the demand is for highly qualified individuals with certain skills, and crafts, and trades that we really need inside the business.

So, what you have is kind of that supply and demand gap. And I think what's also in the marketplace, too, on the awareness side is, I don't think people fully understand what careers and jobs are available inside of manufacturing.

And if you walk through a plant today, you know, its robotics. Its 50,000-ton presses. It's really highly skilled people with strong career paths. You could actually grow up on the shop floor. You could come in as skilled trade. You could continue your education through tuition reimbursement, and you could move into operations management, right?

And I think there's a view of the industry -- that it's heavy industry, that it's not a place you want to be, that it doesn't hold the career paths. And I think that's creating a supply gap, because not enough people do what it takes to get the skills to come into the industry.

MR. BROWN: I think another part of that, also, is that, you know, we've tried to take a deliberate view of this and use the right words, because I think it matters. So, there's a lot of talk about the skills gap, and we've taken to describing that as a

training gap. People have the skills and the capabilities, but companies have not spent money on training like they have in the past.

So, there's lots of people available, but the jobs we have are so technically complicated that even if you're an experienced welder -- you know, you come in to one of our plants, somebody's going to watch you, side-by-side, for a very long period of time, until we, you know, turn you loose on the product by yourself, because what we build and assemble is quite complex, and quality needs to be quite high.

So, you know, even a supply of welding graduates from a local community college -- that's not an immediate in to us, right? You might get hired, but it's still going to be some time until we, you know, we feel like that's the right person for us.

So, I think that, you know, companies have to, again, shift their thinking, and then start to think that, you know, if I can't find what I need, then what else do I need to do? And, again, when there's an abundant supply, you outsource that to an agency, basically, and say, you know, you guys figure that out. You find the supply; we'll pay you for the effort.

But now, what we're doing is starting to move further upstream -- all three companies, I think, are moving further upstream. And, again, most HR people do -- at the local plant level, where you're wearing 14 separate hats, you don't have that skill set. You may not even have the time to go meet with the local community college, and sit down, and sort of work through the issues.

And I think that some of the -- some of what we've tried to bring from a private sector perspective is a sense of reality. And the reality is that there's a lot of people talking about this issue, but from my perspective -- and I've said this before in some other panels I've been on -- you know, we're a key stakeholder, if not the key stakeholder.

There's lots of conversations taking place between the government, the academic institutions -- which, sometimes, quite bluntly, leave out the private sector. So, everybody's got a solution. There's millions of studies, but people forget to ask us what we actually need.

So, you can produce all these workers, but if you haven't checked with us first, we're not going to hire them, plain and simple. And if it's too confusing for us to figure out how to engage with you in the private sector, state, local, federal government, we're not going to, because we're going to find a more efficient way to move forward.

So, one of the things that we're trying to do in the work we're doing with AMP and some of the other venues we've had is to get people to treat us a little bit more like the customer in this regard, and listen a little bit. And we're starting to see some progress in that arena so that -- at the end of the day, this is about jobs. It's not about anything other than that. That's what's going to help the country. That's what's going to help us move forward, and everybody wins in that regard.

But it's astounding to me that that simple truth is sometimes missed completely.

MS. SKAGGS: You know, I think our youth today just -- plainly, they don't see manufacturing as sexy. It's not a sexy job to be in. And so they don't understand, and we haven't made a big effort in helping them understand, the type of jobs that we have -- and the wages that you can get with those jobs.

Many of us, as parents, push our kids into the four-year degree programs, because we think that it's the right, you know, path to take. Again, some of us as parents don't understand the value in community college degrees and vocational training, et cetera.

And so when we look at the company for workers, and you say, you

know, there's, you know, not enough skilled workers; yes, we have a, you know, high unemployment in the youth sector -- it's because there is a mismatch. There's mismatch of what we actually need and what folks are actually getting trained on.

And so we just need to make a bigger effort through partnership, just like Mike said, in helping the youth, helping parents, helping the educators understand what we need in industry, so that we can prepare our youth, and we can train them appropriate for the jobs that we have.

MS. JACOBS: Mike, I was interested to hear you call it a training gap instead of a skills gap. I like that a lot. But I'm curious if you have thoughts -- and I'd be curious to hear from all of you -- of sort of where did that come from? Is there a time that employers used to put more time into training and be more willing to hire people who weren't actually ready to do the job yet, because it was just expected that that was part of what it meant to take on a new hire?

Did that model used to exist and doesn't anymore? What happened?

MR. BROWN: I mean, I think, you know, not just in the industries that Siemens is in, the segments we're in, but I just think, generally speaking, you know, the things that people used to do when they graduated from college -- you know, most big companies -- the banks, the insurance companies -- you know, all segments of the economy had entry-level training programs, and that's how people got started.

You know, you went to someone's management training program, Citibank's credit program, this program -- that's how you got your career started. That's how you got your foot in the door. And those opportunities really don't exist anymore. In almost any industry, some -- they've completely evaporated -- and in some, they're just greatly scaled back.

So, I think the pendulum swung to perhaps we can outsource the labor to

other parts of the world for cheaper, and we don't have the time or the effort, you know, with economic difficulties in companies focused on profitability. You know, if you can find a quicker way to do it, you may do that in the short term, but it's not sustainable long-term -- which I think is one of the benefits of the German system that takes a very long, multi-stakeholder view of business, government, economy -- sort of the state of society, broadly put.

And I think we've just gotten away from that in the U.S. The apprentice programs that we used to have in big numbers have gone away, and, you know, I think there's a lot to be learned by just looking back 20 or 30 years.

MR. BASHORE: And I'll build on Mike's point. I think when you look, it was there. So, there was a day when some would come in and say, I've joined up with an apprenticeship program, and people would pat him on the back and say, that's fabulous. You have a great career.

And, to be honest, that wasn't that long ago. You could go back 30 years ago, and you could see it. But what -- I think what's happened over time is, with the movement of manufacturing, some of the cost pressures, the companies -- I use the term lean-out, okay? You lean down staff, and, unfortunately, you look at the staff that's critical to operating the facility at any given time. And so you end up not having those developmental positions, then, at the level you should. I think that's exactly what's happened over time.

On the other side, though, if I walk into a plant, you will talk to operational leaders at a plant who wants those positions back, okay? They clearly see the gaps. They grew up through the system. They want it.

And something that we're starting to talk a lot about is, I think a lot of people entered the system, and they grew up through the system, and now they're

retirement age, and so the pipeline gaps are getting bigger. And so there is a cost to doing nothing, right? And we're starting to look at the cost of doing nothing.

I think you really, you know, pulled as much out of the system as you could, and now it's right in front of us, and it's exacerbated by the training gap. And as part of that, I think that's becoming more and more visible to people.

MS. SKAGGS: Yeah. No, I certainly agree with both Mike and Greg. We've certainly gone away from doing that, you know, basic training, because it has become more expensive, and we outsource a lot of those, you know, jobs, et cetera. We went to more of a program of doing internships and co-ops, and, you know, what we find in that space is that we end up giving folks more lower value-added work. That really isn't giving them the training necessary for them to gain the skill sets that we need long-term.

We end up bringing them in, and then we train them. But I think, you know, programs, as we've been talking about -- the apprenticeship program that we've been working on the last few months -- is definitely going to be very, very important and critical for us to get our skilled labor -- and even our professional labor, actually, to the place where we need it in the future.

MS. JACOBS: This is kind of a nice point, I think, to pivot to the Advanced Manufacturing Partnership -- or AMP -- which is an effort I know you're all deeply engaged in. Just a little bit of quick background, and then I'm going to turn it over to Greg to tell us what's really going on.

But President Obama convened AMP in 2011 as an effort to generate a more explicit national strategy for industry, academia, and government to work as partners -- so getting right to this question of kind of key institutional partners in workforce development -- and, more broadly, as an effort to revitalize the manufacturing sector in

the U.S.

So, in July 2012, the inaugural AMP Steering Committee came out with a report that had a bunch of policy recommendations in it, including investing in science technology and innovation, a set of public-private partnerships to build high-tech facilities, and upgrading community college workforce training programs, which is something I know there's several people in the audience who are very invested in.

AMP 2.0's basically, like, keeping it going. I think there's a lot of enthusiasm around what happened, and a vision that there's a lot more work to be done. So, AMP 2.0 brought together a new Steering Committee to continue to build on that work of the inaugural group, and that's kind of where we are today. We have three folks who've been involved in that.

So, I'll let Greg correct all the mistakes I've made in --

MR. BASHORE: No, no, you're spot-on. It was good.

MS. JACOBS: -- in giving the overview of AMP, but, also, just to tell us what you guys are working on, explain kind of how the work is organized. Tell us what's going on over there at the White House.

MR. BASHORE: Absolutely. So, just an overview on AMP real quick, and I'll ask Lisa and Mike to jump in on pieces I missed, but -- so Advanced Manufacturing Partnership -- I would say AMP 1.0 was more focused on policy and more focused on high-level themes.

So, what we've clearly heard in AMP 2.0 is a call to action, but we want more outcomes versus more discussion, okay? And inside of there -- you may ask the question, why focus on manufacturing? Well, in the lead-in, you saw the impact of manufacturing from the number of jobs that's, you know, employed in the economy, to the dollars it produces, to, quite frankly, you know, there's actually more manufacturers

than anybody would ever know.

We're representing large companies, but I think 85 percent of manufacturers are small companies, okay? So, we're a drop in the pond, so to speak.

But the first thing, I think, is, the relevance of manufacturing is key, okay? So, this is an industry that's relevant, but the more we can innovate within the industry and grow the industry, the more jobs we can create, and the more we can become globally competitive, okay?

So, I think that's really the driving factor behind AMP -- is really driving the economy and leveraging what we have from competitiveness and jobs, as well.

So, then if you look at AMP, you can think about, well, what are the areas of focus within AMP? And there's really three.

One area of focus is on the technology. As I mentioned, the more we can grow innovation in the U.S., the more we can create the industries of the future, the more we can create jobs, okay? So, that's the first piece.

The second piece is really on the skills -- or training gap, as Mike coined, which I think is good. Do we have the workforce we need to actually feed the jobs for the industries of future? And I think all of us are saying in certain areas, yes, and in certain areas, no, okay -- just being candid.

And then the third is really just overall the view of the industry and the capability of the industry. And you heard Lisa talk about different individuals' perceptions or views of manufacturing as a whole. And, again, who's going to go work at, you know, my Cleveland Works plant versus Google, right? Those are some of the discussions that are had.

So, I think that's some of the focus areas. Now I'll just carve off the workforce development piece, just so you get a sense of what we're working on.

Inside of the workforce development effort -- or I think they call it work stream -- there's four subprojects or work creeks. One is really focused on transitioning veterans, quite frankly, from retirement or transition out of the military, into the workforce, with a focus on manufacturing -- because there's a lot of good opportunities for veterans to come in with good leadership skills and actually contribute to the manufacturing environment pretty quickly.

Another one is educational pathways. For those that know about career pathways, when you talk about it, you know, from a salary standpoint, there's actually a common thread about educational pathways. What educational processes do I need to go through? What are my opportunities to make myself a viable candidate for manufacturing -- similar to what Mike mentioned?

There's another piece, which is credentialing. And you heard a reference to that, so stackable, portable credentials. And how do I set a -- establish a set of credentials that are known throughout the industry, that are relevant to employers, so if we see someone with those credentials, they immediately have a leg up for employment into one of our companies? That's kind of the thought.

The fourth one is what the three of us have been heavily working on, and it's an apprenticeship model, okay? And how do you define an apprenticeship model for America, and how do you actually make it scalable?

So, inside of that space, what this group has been working on is, actually, the development of a playbook. So, if you think -- you know, have you ever looked at something like a how-to guide? What Dow, Alcoa, and Siemens are doing -- and it's touching many, many of our plants -- is taking our knowledge base over many, many years, and laying out a playbook for you, which would go from workplace planning all the way to establishing public-private partnerships, to recruiting the workforce for an

apprenticeship program, to training them, validating the training, and then transitioning them to employment, okay?

So, a pretty comprehensive book, and that's what this team's been working on with a lot of people in Dow, Siemens, and Alcoa to do that, but hopefully that gives you an overview.

MS. JACOBS. It does. Thank you. I want to let Mike talk a little bit more about the playbook, which, I think in one of our calls, you called apprenticeships for dummies -- which I love, although I was writing that out, and I was like, does that imply that the person who picks up the book is, like, the dummy who's going to (inaudible)?

But I don't think it is. People -- the "For Dummies" series has sold many, many copies for a reason. And I think both -- I'd love to hear details on kind of the meat behind the idea -- and, also, more specifically, it's come up a couple times that -- I think you said that 80 percent of the manufacturing field is actually not the big fish who are in the room, but are small and medium-size enterprises, and that that's potentially the target for this book -- so how you're thinking about that.

MR. BROWN: So, the -- yeah, don't ask my wife who the dummy the report refers to -- I think what we've all learned and sort of brought to this discussion is the fact, again, that there's been so much academic, and governmental, and policy maker, and think tank discussion about this, but what we brought was, you know, sort of what we thought was a practical perspective -- to say, does the average HR manager sitting in a plant, on the assumption that most of their talent acquisition efforts in the past have been through an agency, do they actually have any idea how to start?

And the answer was no, most don't -- especially at the small and medium-sized companies, because they just -- they have a million other things to occupy their time. And if you've never had to think about this, it's impossible to start. And then,

again, bluntly put, you make one or two phone calls to an institution that confuses you with their jargon and talks a completely different language, you're going to stop, and you're going to call your agency back and say, please help me find (inaudible).

So, what we did was we thought, all right, let's write a book that anyone could pick up -- plant manager, HR manager, anywhere in the country, small, medium, large-size companies -- that would literally read like a playbook, a how-to guide. You start at the beginning, you go through to the end, and you have a fully up-and-running, operational apprentice program.

We've got surveys, questionnaires, interviews. We're writing it -- literally writing the book now. We've got, what, five chapters done so far? We've had a couple of meetings. It will be on sale in the book -- no.

MR. BASHORE: We'll be doing a tour.

MR. BROWN: Yeah, we'll -- book signing.

But we're really excited about this, because we think that where the three of us have sort of had to stumble into some of these lessons learned -- and made some mistakes along the way -- we think we can help other companies.

And then what we believe we will do by virtue of the -- you know, just sort of the pulpit that AMP gives us -- but, also, the size and scale of our three companies -- when we start to have conversations in Texas or Sacramento, you know, you can attract a crowd. You can attract your supplier ecosystem. You can attract through the community college other members of that community who would benefit from this.

And we realize that -- we believe we have a responsibility as the large employers to sort of get things started, and then you can bring a lot of other people along with you. So, we're actually discussing now where this playbook will sit after we're done. And, you know, again, we hope that it's going to be something that will live beyond this

first iteration, and allow people to sort of figure this out at the local plant level.

MS. SKAGGS: I think real-life, practical examples is probably the key, you know, to the book that -- the playbook that we're creating. You know, many times, we see a lot of theoretical approaches in a book. And, you know, when we talked about how we're going to put this book together -- and settled on, you know, let's make this something where a company that's looking to implement an apprenticeship program can feel like, oh, yeah, this is realistic. This is something that we can do.

This is -- there are many examples and tools that will be provided in the book where, again, it will be something that any company will feel that it is a doable, doable program to implement in the company.

So, I think it's going to be very practical for companies.

MR. BASHORE: And I want to build on something here, too, because I think it's important. And as the companies sit down, I think people might have the opinion that everybody runs apprenticeship programs the same. So, Siemens's program is the same as Dow; is the same as Alcoa.

And I'll tell you that's not true. And something that's very interesting is, I think the collective wisdom from -- not from us on the stage, but people in the plants, that have run these programs for years -- that's what's going into the playbook.

But if you look at it, all of us have different experiences -- some good, some bad, some very positive- - and the experience set is very different across the three companies. So, what's going into the book is the combined experience, okay? There's not one exact -- there's steps to go through that are consistent. Is there one exact model we use? No. Are definitions of apprentices the same? No, okay?

So, when you look at that, as we think about the book, I think the value is, simple, easy to use. And our acid test is, if I walk into an HR manager's -- would the

corner of the page be dog-eared, right, turned over -- meaning they're using it, versus sitting on the shelf. And then I think the other piece is, you know, the variety of input that's in that book. I think it should be pretty interesting, and I think we've all learned from each other as we work through that.

MS. SKAGGS: Yep, I was going to mention that, definitely, we've been able to leverage some ideas that we have picked up on our own for the programs that we have or are planning to implement ourselves.

MR. BASHORE: Absolutely.

MS. JACOBS: So, I don't want to ask you to, like, give away the book, because I want your sales to be high -- although I think maybe it's going to be, like, a free online thing, in addition to for-sale.

MR. BASHORE: Yeah, that's where we're going.

MS. JACOBS: I would recommend that for impact, but I work in the nonprofit sector, so you shouldn't actually listen to me on business advice.

But I wonder if you can sort of give a specific example of, A, a general practice -- or maybe B, a sort of set of options -- just dig into the meat a little bit of what you're trying to suggest to HR managers.

That's a general question, and I don't know who can answer it, but I'm not sure how far along the thinking is. But I would love to hear more.

MR. BROWN: We can answer anything up to chapter five.

MS. JACOBS: Okay.

MR. BASHORE: Another three weeks.

MR. BROWN: Another three weeks, we'll have --

MR. BASHORE: -- five to ten.

MR. BROWN: I think we -- you know, part of what we're trying to do, too,

is sort of capture some of the thinking that we articulated, I think, at the beginning, which is that part of an HR manager's job -- if this is the primary target for the book -- is to convince the plant manager in this instance to think differently.

So, that's not an easy skill sometimes, because the plant manager has a P&L to meet, and the concept of, you know, training people who aren't going to be immediately productive is sometimes a difficult sale to make internally. But part of what we're doing is building some workforce planning templates in upfront, to have simple conversations to say there's a cost of doing nothing.

And what we're finding -- the reason we think this is going to catch fire is because when we go out to the plants, I think all of us can start to engage managers in these discussions. You're getting far faster uptake on the conversations. The workforce is aging, you know, business is coming back, orders are coming in, there's a demand for people.

And, you know, I visited our Sherwood plant a few weeks back. Two experienced machinists resigned -- retired the day I was there -- so long-standing -- you know, great careers, and they -- so they're happy, and we're sweating in the conference room, wondering, oh my God.

MS. SKAGGS: They put you to work that day (inaudible).

MR. BROWN: Really happy for you. Can you stay another 20 years?

So, we're trying to take some real practical examples to say -- not a theoretical, you should have a workforce planning discussion with your plant manager. Here's a form. Use this template. Put your numbers into this template, and then have this kind of conversation with your plant manager to get them to think differently about the future of the workforce -- as one example.

MS. JACOBS: Yeah, that's great.

MR. BASHORE: I think that's -- and to take Mike's point maybe to the next level is, so templates, and tools, and the workplace planning discussion -- but what's also in there -- obviously, a private sector business case. So, one thing we're looking at is, how do you build a business case to support the long-term development of that pipeline, right? And then how do you evaluate it to see if you achieve that business case after the program? So, that's another example.

One thing that I would say -- I think it's a great example -- I think it's an exciting example that we all really liked as we started putting our minds together -- one thing we're looking at in one of the chapters -- I'll give you a preview -- how's this -- a preview of chapter 10.

But on the preview of chapter 10, it's really about keeping your program relevant, okay? A program of 30 years ago is not relevant today. And so there's different tools we're putting in there and different thought processes to keep the program relevant on that concept of the pipeline.

And one thing we're doing is a success profile. So, go back and talk to people that have come through previous programs that secured employment in your company, and they're seen as top performers in your company today -- maybe 10, 15 years of experience -- clearly someone who has a successful track record. Interviewing that person to talk to them about, what was relevant about the program? What would you change?

So, a whole different perspective -- so not HR sitting in a conference room designing something, but people that have been through the program.

And I think all three companies were really excited about that. And we're actually talking to some of those people now, and the stories are fabulous -- absolutely fabulous -- about their career impact. So, that would be another example.

MS. SKAGGS: I would just add one other aspect of the playbook that I think is really important, and that we are getting a lot of information on, is around funding, as well -- and not only funding sources within the company, but funding sources external to your company that may help and support an apprenticeship program.

And so when you look at a very small company that, you know, struggles with budgeting, et cetera, you know, what are the ways to create an apprenticeship program, and get it funded, you know, through other methods?

And so we have had many of our plants that have gotten grants and, you know, different external funding sources to be able to start an apprenticeship program. And so we are putting our examples in the book, as well -- even some of the grant -- the actual grant-writing examples in the book, as well, that could help other companies may start, you know, putting together some thoughts on how to get grants for the apprenticeship program.

So, we think that's very important, as well.

MS. JACOBS: So, AMP is a very high-level example of an industry-educational institution-government partnership. I'm curious to hear from each of you kind of the most surprising thing that you've learned or experienced. I say surprising because it could be, like, oh, a good surprise -- or a bad surprise.

I'd actually love to hear one of each, but I don't want to put you on the spot, so I'll leave the general -- sort of what surprised you most? What have you learned from the AMP process so far?

MR. BROWN: Well, I'll jump in, and I'll just reiterate what I said earlier today.

It's just -- you know, I think all organizations get sometimes too internally focused, right? So, companies tend to sometimes focus too much on their internal

process, and forget about the customer. And if you do that for too long a period of time, it has a dramatic impact on your ability to survive.

And I think governmental institutions, educational institutions -- everybody has a tendency to sort of feed the internal beast. But it was shocking to me, quite honestly, that there was so little interaction with private sector people throughout the country. Lots of educational institutions, lots of think tanks, lots of governments -- you know, federal, state, local -- all talking to themselves or talking to one another and leaving out the private sector.

So, what we're trying to focus on is that, you know, these words are important. These things need to be demand-driven, and the demand's coming from us for the jobs. So, if you don't talk to us about what exactly we're looking for, and you make a lot of assumptions about what we want, and then you can't get there from here, that's a problem.

So, we've been, you know, politely aggressive in terms of that message to people, to say, you know, it ends with us. If somebody doesn't get hired, you know, this is all for naught. And we're the people hiring folks, so we want to be listened to differently. So, that was a real shock for me.

And I'm also pleasantly surprised at how quickly people are pivoting now to listen.

MS. JACOBS: Were people surprised to hear that from you?

MR. BROWN: I think they were, quite honestly. I mean, we've been talking about this for a while, and I think people were surprised. I think you see some looks on people's faces, and I think --

MR. BASHORE: And I'd build off of that, because I think they were, Mike -- because I think at the end of the day, we heard some comments about -- we were

curious why there's no pull. So, we're creating these programs, and we're curious why it's not translating the jobs and there's no pull.

Well, there's no pull because we don't see some of those as directly relevant, right? But, to Mike's point, it was a great discussion in AMP 2.0, especially with our -- the credentialing team. And it was a fabulous discussion, because their learning was some different thoughts on how to do credentialing that may make a lot of sense for employers -- because I think at the end of the day, the goal should be, come and it should be a job, right?

And if we focus on a common goal, whether that be from, you know, the academic side, or the private sector, or the public sector, we can all get focused on the outcome measure as the job -- then I think there's a lot of passion and intensity, and I think we can drive it to where it needs to be.

So, for me, the flip side of the lack of connection to the private sector (inaudible) there's certain situations where it was good; others where it was bad. But I think Mike's general statement's correct.

But I think the other piece is -- the positive is -- if we can take that passion and point it to a same outcome measure -- a job -- I think we have a lot of upside.

MS. SKAGGS: Yep. And just to not prolong it, you know, any longer, I think I agree that the most shocking thing has been the lack of partnership that we have seen. But, certainly, with the efforts that we've been putting forward, we certainly have seen a lot of interest in that space, in getting more partnership, and moving forward.

So, I see great success in the future.

MS. JACOBS: I want to come back to the partnerships idea. But before I lose it, you brought up credentialing. And I know that was a separate work stream --

stream -- is that right?

MR. BASHORE: Work creek.

MS. JACOBS: Work creek.

MR. BROWN: Creek.

MR. BASHORE: Work creek.

MS. JACOBS: Right -- creek and stream. I read this last night. It was very (inaudible) continued metaphor.

So, the credentialing work creek was not what you all were working on, or -- can you tell us more about credentialing without me putting you too much on the spot?

MR. BASHORE: Well, we can, but I'd lean on the other team. So, what the three -- the teams are structured differently, with different leaders across these creeks, okay?

Siemens, Dow, and Alcoa are focused on the apprenticeship model, and we're leading that. So, we have a lot more knowledge and insight into that, because we have a lot more working sessions, and face time, and team involvement.

But we do get updates from the other teams as part of broader views. And on the credentialing side, I think there's been a lot of fabulous work in regards to, how do I create common credentials for those interested in manufacturing on a broad scale?

And the thought is, the broader I can create them, the more portable they are, and the more that someone can pick up from one region to another and walk into a job. And I think that's all very, very good and very, very healthy.

The disconnect that we're talking about on the credentialing side -- and there's layers, and there's models and stuff that I couldn't explain here, in all candor -- but

was this issue of what's relevant to Dow, Alcoa, and Siemens.

And if you drew a pyramid, and you had 100 skills on that -- and, quite frankly, we might say, what, 25? 25 of those skills, we're willing to pay for; 75, we aren't. Right?

So, that was a real example of the gap, but I think the models are very healthy, and the thought process is very healthy. And I think it's a longer-term play.

And what I mean by that is, I think right now the immediate supplies need to be built, but I think, long-term, if you can create credentials that are relevant to industry, I think it's only good. But in the short term, I think it's more about the short-term supply and less of a focus on credentialing. That would be my view.

MR. BROWN: Yeah, and I think it just gets down to, you know, sort of candid, direct talk, right? So, part of what we've tried to bring from the private sector side is to say, you know -- not to sound completely disrespectful here, but part of what we have to be willing to ask ourselves -- all parties involved in this issue -- is, do these things that we, at our organization, care about -- do they matter -- or do they matter as much as we think they do?

So, part of what we've tried to do on the credentialing discussion is to say it's important for people to be credentialed. But you really need to do the same thing with that topic that you do with all others, which is, check with us -- because, as I said earlier, you know, if somebody comes in with a welding certificate, that guarantees them nothing. We may hire them; we may not. You know, we're going to test them first. We're going to watch them.

So, part of what we're trying to get the credentialing folks to think about is, you know, should we rethink this? Because just like anything else you do, you become very close to the topic, and you forget that there's another set of stakeholders

involved who may not share your opinion. So, part of what we're doing is encouraging them.

In fact, I think some really healthy debate about that -- to say, you know, is it possible that this is not as important to employers as you think it may be? Ask the questions, and then you can determine what is important and then focus on that, to Greg's point. There's a lot of work to be done in that space, but it's, I think, the willingness to ask provocative questions and, you know -- are welders really going to move from one part of the country to another? Does portability really matter?

For some people, it does, but for the vast majority of people, it may not. So, what should we be focusing on perhaps differently? Where should the emphasis be?

MR. BASHORE: But you know something -- just to call it out as an example -- I think this is the level of discussion we're having in AMP 2.0. And I think the value of AMP 2.0 is, the discussions weren't happening before, okay?

MR. BROWN: Yeah.

MR. BASHORE: So, these are very open discussions -- the exact same comments Mike and I had -- and Lisa had -- were the exact ones with the work creek leads -- and, I think, very, very productive -- similar to us, because we've had people challenge contents in our playbook, and it's only made the playbook better, okay?

So, I think that's a victory of the AMP 2.0.

MR. BROWN: And I think one other thing, too -- which we probably were not as direct about as perhaps we should've been now, but it just dawns on me that we should say this -- so part of this is discussions that we've had internally, which is great, because we've all learned from one another. But we are, in this workforce development team, in regular conversation with the Department of Labor, the Department of Education, the Department of Commerce, with the, you know, Chair of the National

Economic Council.

We have Steering Committee meetings, you know, every so often, at which broad-based findings are reported back, but we've had a number of working sessions with senior advisers and senior people in all these departments to talk very specifically about the things that we're talking about.

And, also, we've had -- you know, we just had a session here with John Ladd, who runs a National Apprentice Office for the DOL. And he looked with his team -- looked at a draft of the playbook, and gave us some input, and we made some changes. And, you know, we're inviting him back for our next meeting.

So, it's not just -- as fascinating as the three of us are to talk to one another, it's good to talk to people that, you know, can make a difference. So, that's the thing that I'm very excited about -- that we're talking with, you know, senior people in the departments, in the administration, and really being listened to.

You know, I think the other AMP topics are important, but there really seems to be a special attention being paid to the workforce development work because of the job component.

MS. JACOBS: So, AMP is kind of a high-level example across institutional partnership -- that business-academic institutions-government.

I'm wondering if you can each speak a little bit to other examples of that that you've been engaged in -- what your corporations are doing to be part of that or foster that kind of thing.

We hear again, and again, and again kind of from each of those institutional partners that those things are important, but I often feel as though everyone knows they're important, but we have fewer examples of best practices for actually making them happen.

So, both your successes, failures, thoughts from your perspective on a more everyday level, beyond AMP?

We can go the other direction this time, Lisa, if you want to jump in.

MS. SKAGGS: You know, at Dow, we -- gosh, we've tried many different things, you know, in order to be successful in that space. We have many programs, you know, out there. We've got internship-type programs. We've got co-op programs. We've got apprenticeship programs, you know. you know, apprenticeship programs even buried within Dow by the side set -- you know, side-by-side.

What we find to be successful in that space is when we have a commitment with a local community college in a partnership where we can help influence the curricula that is put together for that program.

And so through -- for example, in Texas, we have a number of community colleges that we partner with specifically: Brazosport College, Victoria College. In Michigan, we've got Delta College, you know.

We partner with them, and over the number of years, we've been able to help them understand what our needs are. And we've been able to get skilled workers through that process, you know, as well.

You know, some of our failures in that space is that because we -- we're a business; we're a company. And because we go through cycles of hiring and cycles of where we're downsizing, it is very difficult to make 100 percent commitment that if you are able to attract an X number of students in your program, we will guarantee hiring them.

And so what happens is that we are very successful in getting the curricula up and running, developing the relationships with some of the high schools, you know, to get the students into the curriculum, et cetera, and then, just as some of the

students are, you know, about to graduate, we go through a downsizing.

That's been some of our failures. And I'm being very candor about that, because, while on one side, we want the skilled workers -- and we do everything -- and we will do everything to try to help grow that talent within the industry -- we do go through some cyclical upsides and downturns, as well.

And so I would say that would be some of the failures.

MR. BASHORE: We have similar programs, but maybe I'll give you an example of something I thought was pretty creative early on, because there's a lot of discussion about K through 12, and how you engage early to actually get people interested in manufacturing.

And at our Cleveland Works facility, we actually -- Cleveland School District was redoing their school system, and with a focus on some vocational training. So, there's a high school -- Max Hayes High School -- that was being developed in Cleveland. And we had the opportunity to work with them, to start to influence the curriculum locally, right, before the high school's being developed.

And, you know, I think it's come a long way. I think there's still room to go, but other than -- I think other than initiatives around apprenticeship programs, internships, salaried hiring, et cetera, I think there's another focus which talks about, how do you engage in community early, and how do you start showing them the value of manufacturing?

So, you create that pipeline, and I think that was a good example of, you know, a high school connection where people could come to the plant, see the actual facility, gain interest and see the success of the workforce.

So, I think that was -- from Alcoa, I think that was a pretty creative step we took.

MR. BROWN: I think the best example we have is the Charlotte, North Carolina plant, where we doubled the size of the production facility down there we built in service, I guess, in steam turbines -- and gave us a real opportunity to work with, I think, in a very positive way, all local stakeholders there -- so very strong partnership with Central Piedmont Community College, with the City of Charlotte, with a local nonprofit called Apprentice 2000, State of North Carolina.

And, you know, this is where we really drew heavily on our German roots. So, we sent some professors from Central Piedmont to Berlin, to get certified in the mechatronics curriculum, so that they could come back and help us teach -- to Lisa's point, we help them design the curriculum locally, to produce the kind of workers that we needed.

And, again, that's a very strong partnership, I think -- ongoing with them, in terms of curriculum development, technology transfer. You know, we try to donate equipment to them when we can. You know, we make our facility available for them to conduct some of the training, you know, actually in the facility, as well, and that has been great.

And it just goes to show what happens if all people that are involved in this have a similar goal -- and sort of a shared goal. And the shared goal was, we needed to hire a lot of people quickly, and then we needed to build a sustainable pipeline of that talent going forward, because that plant -- we relocated a lot of people from Canada and some people from Orlando, and that workforce is aging rather quickly.

And it's a great opportunity for the older workers to share their knowledge and experience with younger workers. And we have one great story that we love to tell with a young woman whose parents desperately wanted her to get a four-year degree.

And we did a program in the local high school, and she got excited about manufacturing. She toured the plant. She's now an apprentice in our program. She's got, you know, a cool job. She's got a two-year degree. She's an apprentice -- you know, a journeyman licensee from the State of North Carolina. And most of her friends that went to four-year schools are living at home with their mom and dad, maybe working at the Gap. And she's making a fair amount of money, and she's got this tremendous career ahead of her.

And she walks around this unbelievable plant that's clean, high-tech, and she doesn't carry a wrench; she carries an iPad. And her parents are now absolutely thrilled with her decision to go into manufacturing. So, we use her as an example all the time -- what can happen.

We've got two tracks for the apprentice program. One is for high school students, and one is for veterans -- because we're really committed to the veteran talent pool, as well, so that's been a great thing.

It's just, you know, we wish that we could hire more people in Charlotte. You know, we're all sort of restricted by numbers, but we think we've made a tremendous impact in that marketplace -- and learned a lot of good examples, and trying to blend that together with what we're learning from AMP and what we know from Germany.

MS. JACOBS: So, we've talked a lot about demand-driven solutions, and it makes a lot of sense. But I also feel like it's incredibly challenging, because we've talked both about short-term and long-term and building the pipeline. And I've spent enough time with economists to know that forecasting is really hard.

So, I wonder how you think about that internally -- who your partners are in thinking about that, how do you get local and regional economic development agencies, all the sort of other institutional players on the same page? How does that

work in practice? Does it work in practice?

MS. SKAGGS: Forecasting, like you said -- it's a game, right? And so we really only forecast a couple years out. We forecast, at a maximum, three years out. And every year, we take a look at it, and adjust as necessary.

You know, again, we work with all local state agencies who are workforce solutions group. We work with the colleges, as well. We look at the Labor Bureau statistics, figure out what's going on in the industry, et cetera, in order to help us pull all the information together, in order to forecast appropriately -- and, yet, we still miss it.

So, it is something that we do on a regular basis. Right now, for the region of Texas, we have a workforce strategy that was built last year and projected out for three years. And we look and renew that every six months, because things change.

When we initially put it together, it was pre the announcement of (inaudible). And so we are right in the middle of working (inaudible). So, that's going to make our workforce buy-in change.

So, it changes very regularly, but we do tap into many different sources in order to help us predict appropriately.

MS. JACOBS: What is the carve-out?

MS. SKAGGS: Chlorine assets -- I'm sorry. It's been announced, so I can talk about it.

You know, when you look at our -- just like any other business, we look at what our business is, and what's profitable, and where we make our most margins, et cetera. And over the years, you know, we have seen that within the chlorine business -- which really is the core of the Dow Chemical Company -- but we've looked at that, and we've seen that we make less margins in that space.

And so right now, we have potentially put up on the market for sale our chlorine business -- our value chain so that any potential investors are looking at it right now.

MS. JACOBS: Got it. Thanks.

MR. BASHORE: I'll have to check my phone, just to see if we bought it.

MS. SKAGGS: If there's a deal on the table (inaudible).

MR. BASHORE: One point I would add -- I think the forecasting process is similar for Alcoa. But there -- what's interesting is -- and maybe it's a nuance -- now I'll pick on Texas, too.

But what you find is, as your industry may be shrinking, other industries may be growing. And then you're really tied to the regional population of the skilled trades, based on the fact that they typically don't move.

So, if you look in Texas, for example, our forecast would look very, very good if I looked at it 18 months ago. If you look at the impact of natural gas, and you look at processing and -- the businesses have boomed. So, what you have is - then you have a wage disparity, because in the industries that are really growing, they'll pay, you know, whatever dollars more.

And so the scarcity of skilled trades has then moved other employers rapidly. And so even though we have the plans in place, you look at demographics, you look at business conditions, other industries could dramatically pull the skilled trades, because there's not enough of them, right? And that's something that we fight day in and day out, that we always have to adjust for.

MR. BROWN: I think just one other comment, too, from an internal perspective -- one of the things that we've talked about internally for a while is this -- what many industrial companies are struggling with now, especially in the United States, is sort

of the aging of that workforce.

And, you know, there were dire projections many years ago that everybody's going to retire tomorrow, and, you know, we're going to be in big trouble, and then the financial crisis hit, nobody retired, and now people may never retire.

But the point we're trying to bring back internally is, look, it may have been delayed, but it's still coming. At some point, these people are going to stop coming to work -- one way or the other.

And so we really have to think about that now. We have to think about that differently. And that's, again, I think, where our German colleagues are quite helpful, in terms of that long-range perspective -- and I think something that the American system could use a little bit more of, to think a bit more long term -- because it's hard to get -- you can do all the studies you want in the world, but if the plant manager won't release a requisition to hire somebody, it's all for naught.

MS. JACOBS: I have a long list of questions that I would love to continue to throw at you guys, but in the interest of letting our audience -- who, I'm sure, also have questions -- have some time to ply information from our panelists -- I want to turn over for questions.

Before everyone raises their hands, I will point out a few things. We have two roving microphones in the audience, so please wait until one of those microphones ends up in your hand. And speak into it, so that we can all hear you. Tell us who you are and where you come from, and please make your question a question and not a statement. I will try and be an aggressive moderator, and stop you from making your political belief. So, ask a question please.

Right there, in the middle, with the very tall hand.

MS. RIETIG: Thank you very much. My name is Victoria Rietig. I work

on skills and workforce development issues at the Migration Policy Institute, another think tank here in D.C.

My question goes back to the financing of the programs, the apprenticeship programs. And in Germany, usually the apprenticeship programs are funded -- entirely, to my knowledge -- by enterprises, right? And that creates, in a way, some loyalty, also, with the apprentices in the long run. You mentioned various times the long run -- kind of the long term in which the German companies think.

So, I've read that, increasingly, in the U.S., these programs are supported by subsidies that essentially take away this investment that the enterprise does -- makes -- into his workforce.

So, my question to you is, do you see any effects on the loyalty of the apprenticeships and of the enterprise if it's not the enterprise that actually made the payments and made the investments into the apprenticeships, but took that from a subsidy?

MR. BROWN: I'll start. I think that it's something to keep an eye on. My sense is that, from an American company perspective -- even the American operations of, you know, a foreign-owned company like we are -- German company here in the U.S. -- I think that the American business mindset is such that if somebody helps me pay for something, that's great. And what will matter in the long run is how that person performs.

So, over time, it doesn't matter. People forget who paid, and who didn't. What matters is whether that person fits into the system, whether they're a hard worker, whether they're valued by their teammates, whether they make a contribution.

So, I think, over time -- and I would suggest that not a lot of subsidies are coming for companies on this, so the stuff we're doing in Charlotte, we're paying for.

And so I don't think it's going to have as big an impact. And I think that

part of what we're trying to do here is recognize -- and I think most of our companies have come to this realization -- that you can't -- you know, you can't keep people forever - - and that what we try to do is develop them as if they were going to stay forever. But if they leave, that's great, and, you know, it's good for them, because, typically, they're going to go somewhere else in our ecosystem.

So, we're still going to have the value of that investment somehow -- if they go to work for a supplier, somebody else in the ecosystem.

And if you take too harsh a view of trying to hold onto people, it backfires in the long run. So, I don't think it's going to have that much of an impact. I think what we're suggesting is that we need more government funding, more subsidies -- because while we can afford this, small and medium-sized companies can't afford apprentices the way it's currently structured -- just can't. It's too expensive.

So, if somebody pays for some of that, and that's what gets that person in the door, then their performance and the other things that that employer does to create the bond between them and the company is what will matter -- less about who paid for what.

MR. BASHORE: I agree with Mike. And, quite frankly, I think the level of engagement of the employee -- again, how they're treated day-to-day -- and then I think the regional issues make the determination on, do they stay or not?

Because, quite frankly, if people can drive five more blocks down the street for a higher wage, they will. And I think that really drives it. I don't think the funding of any of the programs makes a difference in regards to loyalty of the employee.

MS. SKAGGS: Yep. No, I would agree, as well. I think they're -- in today's world, the Millennials are going to be moving around as quickly as we can get them in anywhere, and I think it's expected that our workers are going to be moving

through our system into other companies, as well, and so, you know, the engagement -- like you mentioned, you know, employee engagement is a huge thing that many companies are focused on today, in order to try to keep our employees.

But we will, you know -- funding, and grants, and, you know, subsidies, et cetera -- it's probably not what, you know, we would expect them (inaudible).

MS. JACOBS: Bob Lerman.

MR. LERMAN: Hi. I'm Bob Lerman, Urban Institute of American U -- but, also, the founder of the American Institute for Innovative Apprenticeship -- and go on my innovativeapprenticeship.org website to see all the stuff that we're doing.

But I'm struck by the lack of context with regard to programs that have been expanding dramatically in apprenticeship, in especially England and South Carolina -- and especially the idea of the way things will jump up, in terms of company adoptions and actual numbers.

And I'm wondering whether you consider the kind of retail marketing that takes place in the U.K. example -- well, the England example, with training organizations and further education college units that have been leading the way, and causing their apprenticeship program to go from 150,000 to 850,000 -- or, in South Carolina, where they make things very simple for companies -- a very business-oriented team of five or six people. The company guy doesn't have to even read the book; they do all the paperwork.

And I'm wondering whether you've looked at those models, because I think an external marketing effort both at the broad level and the retail level will be critical for a major expansion in the U.S.

MR. BASHORE: Well, I would tell you that I think, overall, there's a strong recognition of the need for branding and marketing, right? Absolutely. And it's

twofold.

One is the development, capability, or opportunities for potential employees. Another is really manufacturing and career paths, right, more broadly.

I would tell you that -- so I think there's recognition of the need. Are there best practices out there that I've seen? Maybe some that you mention are ones we haven't specifically benchmarked. I've actually seen some on a local level -- not on a very high-scale effort, right?

So, I'd say awareness is out there, but solutions, from my perspective -- what I've seen -- I think it's an opportunity versus a gap being closed already.

MR. BROWN: yeah, I think one of the things that we're doing is -- you know, we are a major player in the expansion in the U.K., as well. So, we've just opened a couple of big plants. We've got a significant number of apprentices there, and we're trying to steal shamelessly from our counterparts in the U.K. that are actually working on those programs. So, we didn't have to translate things out of German into English, because they're already in English -- not New Jersey English, but it'll pass.

So, we actually have a taskforce now inside Siemens to have all the major regions of the world connect on this topic. And, again, these things evolve over time, and the light bulb goes on, and you say, why haven't we been talking to one another about this?

So, we just -- that's why I wanted to do (inaudible) we had a meeting with people from all the major regions of the world get together. And we visited our train factory there, and we met some apprentices who were 16 or 17 years old, who gave us presentations on what they were building and doing in English, which was just astounding to me -- and, you know, excellent young people, building some pretty cool stuff and doing presentations to a senior executive group in English was just really fantastic.

So, it really gives you hope that if you do this thing right, it does work. But we're stealing from our own company internally, and using a lot of the marketing materials that they have -- the websites. They do a fabulous job of reaching out to parents, and convincing the parents that these are good careers. So, I think there is opportunity, and we're all learning and growing in that regard.

MS. JACOBS: I want to jump back in and take (inaudible) which we have lots of questions, but there's something you said that I just don't want to lose, which is -- you know, you mentioned going over to Dusseldorf, and that Siemens has had this kind of international learning across the company.

And I'm curious -- as part of that -- and I'll put this out to the whole panel to answer -- whether from your experience internally, in terms of looking at what your company's doing globally, are there things that you feel like you can bring back to the U.S.? Are there things that you look at and think you just can't?

With the example that you just gave of the 15, 16-year-old apprentice from Germany -- you know, one of the reasons why that person exists is because that person was tracked into a technical track very early on in school, and that's what they've been learning how to do. That's essentially their profession, their trade that they chose or were given -- depending on how it worked out -- and that's just not how we've approached education in the States.

So, how do you come to that -- taking these global lessons and actually figuring out what's applicable and what's more challenging to apply in the U.S.?

MR. BROWN: So, I mean, it's a great question. So, I think that part of what -- because, you know, wouldn't it be great if we could just export the German model, right? But it's not going to work that way, and there are things in there that you need to be able to describe. So, what is it, at a high level, that's happening?

There's a pool of people being identified through that, so maybe we don't start as early here in the United States. Maybe we don't -- maybe you start in community college. Maybe you go to the veteran population.

So, you have to -- you know, you sort of look at what it is that's the practice -- and planning is another example. You know, highly sophisticated workforce planning at the state, federal, and private enterprise level -- you know, down to, you know, hundreds of jobs, and where the growth's going to be very sophisticated.

That may not -- and the employment laws are different, so you could be a little bit more, you know, confident in your predictions about employment -- can't do that in the U.S.

What can we learn from that? That there's a benefit, to some degree, of planning and engaging with the right stakeholders. The numbers may change as they do here in the U.S., but the fact that you're sitting down with the state and an educational institution is the key takeaway.

So, I think you just have to discern out of these lessons what's applicable here, and that's what we're trying to do.

MS. JACOBS: All right, floor is back. Right there, in that purple shirt. There's a mic somewhere (inaudible). I think we might be recording, so I want to be sure we get it.

MS. WHITLOCK: Good afternoon. My name is Carla Whitlock, and I'm actually with the Apprenticeship Carolina Program that Bob referred to just a few minutes ago. I'm part of the South Carolina technical college system.

And I was curious to know, what, as corporations, are you all doing -- what innovative things are you all doing and starting to see, in order to get high school students -- and sometimes even middle school students -- involved, and engaged, and

excited about manufacturing?

That's what we're struggling with in South Carolina.

MS. SKAGGS: Some of the things that we are doing -- and maybe not be innovative -- doing Take Your Child to Work Day. When we bring our students -- when we allow parents to bring their students to work -- it is not just sit at their desk or sit in a control room and just monitor what their parents are doing. We actually have a whole program that stems from 7:30 to 3:30 in the afternoon that focuses on the different things that we do within Dow.

We have about a one-hour science experiment that we have one of our chief scientists put on, where they actually get to make ice cream. I stay away from eating the ice cream made out of chemicals, but it's actually very safe. I'm just kidding --

So, they get to do really cool science experiments. They get to hear about careers -- some of what we would consider the nontraditional careers -- and the traditional careers -- the typical accounting, HR, engineering.

Then you hear -- we bring in a process operator to talk about process operating to the high school students, et cetera. So, that's one of the things that we do.

Another thing that we do -- again, you know, borderline innovative -- I'm sure other companies are doing it, as well -- we have started bringing in the high school counselors and some of the administrators to do plant tours so that they can get a one-on-one feel on what we do within the plant.

And so when they talk to the students, and engage with them in different career paths, they can actually -- from maybe just a physical being -- talk about, you know, the actual things that we do at the plant.

And the other thing that we do, as well -- you know, just like, again, other companies, we have the science fairs. And we do that all the way down at the grade

level -- middle schools and even the elementary schools -- we have a lot of science fairs, and we do the judging of the science fairs, you know, et cetera. Again, many companies do that, as well.

So, I don't think it's anything very creative and innovative, but it's things that we are doing, and we are going to continue to make even greater efforts within the communities that we serve, so that we can help our high schoolers -- and even middle schoolers, which is really where we need to tap into -- before they even start making career decisions.

So, that's some of the things we're doing.

MR. BROWN: Yeah. No, and for us, it's very similar. I think something that might be different than what Lisa said is more of an outreach.

So, we'll go into schools and actually teach certain levels of curriculum. We'll open the plants not only to employees, but almost open -- like an open house, from a community standpoint.

So, it's really all about exposing the community to the plant, and the newest manufacturing technology, and what a day in the life looks like. So, we try to promote interaction everywhere we can.

MS. JACOBS: No? Other there -- you've got a mic right next to you.

SPEAKER: You mentioned, Michael, that in Germany, Siemens has 10,000 apprentices. I was curious -- how many do you have here and now? How many will you have or plan to have five years from now? The same for the other two companies.

And the second question is, in Germany, where I just visited, there, the companies choose who they want to have as apprentices in these programs. Do you do the same?

MR. BROWN: So, less than 10,000 -- yeah.

So, in Charlotte, which is our best example, we probably have 1,000 working in that plant -- rough numbers -- and we have currently about -- just ramped that up a couple years ago -- about 25 to 30 apprentices in that plant. And we've been pretty public about the number.

So, the plan going forward would be to continue to look at each of our sites and determine as orders come in -- we just got significant train orders for our Sacramento rail facility, so we anticipate that we'll have a fairly large number out there over the next couple years.

But it's -- I'm not intending to be flippant here, but we're not quite sure -- we're going through a significant reorganization now, so I'm not quite sure whether -- you know, where some of this work's going to sit, going forward.

We will have more apprentices in the United States, going forward. I mean, it's difficult to commit to a number at this point. And, yes, we select the people that we want. So, you know, we engage directly with the community colleges and whatever other source of talent we have -- whether that's the veterans or -- you know, whatever other pipeline comes in, to make sure that we get the people that we want.

MR. BASHORE: And for Alcoa, very similar. We go through a structured selection process. From a scale standpoint, probably the largest apprenticeship program we have going right now -- Massena, New York, we have 50 apprentices in a population of maybe 750 employees. So, it's a very large apprenticeship program.

And we're actually in the process -- because you saw the news on the F-150 and other pieces -- obviously, we're doing some expansions, so we're evaluating what the needs are, quite frankly, at this time. But the Massena gives you a good

example of a large-scale program for Alcoa.

MS. JACOBS: I just want to point out -- I think, in some ways, this highlights what a ways to go the U.S. apprenticeship program has, because these are some of the companies that are the most, I think, philosophically committed, and have done the most internal thinking, and are the furthest along in terms of real examples for industry, as far as understanding, in a really deep, fundamental way, how important apprenticeship can be.

But even on an implied level -- I mean, I think my sense from both of you is that it's not wrong to say that you recognize that your programs aren't particularly large, particularly compared to what some of our global competitors and your global partners are doing.

So, I would just sort of -- that would be my takeaway.

MR. BROWN: Well, and I think the important thing -- to just, you know, comment on this -- is that the large numbers don't exist because they didn't need to. There was no reason to think about this five years ago, because there was a steady supply of people, and you could find them in a variety of different ways, and you could hire people off the street, and plug-and-play them into roles.

That workforce is aging. The skills are becoming more difficult to find, so now companies have got to really sort of -- so we're in the midst of what I would consider a significant sea change in terms of the acquisition and development of talent for skilled labor in manufacturing sector here in the United States.

And what you're seeing are three companies that are really taking this pretty seriously, but we're just getting started.

MS. JACOBS: Go all the way to the very back.

MS. ROOT: Hi. Thanks for coming back here. I'm Ellen Root, from the

American Association of University Women.

And going back to AMP 2.0 and your call to action, can you please speak to how recruiting and retaining women and more minorities in the manufacturing pipeline is coming to bear in your conversations?

MR. BROWN: I'll jump in real quickly here.

We've got, I think, like many other companies, a variety of what we call employee resource groups -- or affinity groups, I guess, is another term that's used -- but we call them employee resource groups -- across our various businesses, and locations, and job families.

So, we have, you know, groups that represent women, African-American, Hispanic, you know, young professionals. We've got a variety of different groups. And what we do, quite simply, is plug them into -- these are people that, you know, have a day job, but they're passionate about the group that they're a member of -- and we try to apply that passion by getting them to help us recruit.

So, when we go on college campuses, we go to the community colleges, and we take, you know, a variety of different people with us, and then we try to meet with, you know, the diverse students. So, if there's an African-American engineering club at a college (inaudible) Society of Women Engineers, we will send some of our women engineers in to do things -- simple things, like pizza lunch -- so that a young, about-to-graduate female engineer can see somebody three or four years older than them that was where they were before, that's now got a successful career started.

And they are very passionate recruiters for us. So, we just try to make some simple connections in terms of taking the people that represent our workforce out on the recruiting tours with us. And then we use them as mentors, and we use them as, you know, sometimes a person to help sell somebody into a career -- so that they can

see that somebody like them has been successful at the company -- so just one example.

MR. BASHORE: Yeah, I think that's fair. On the Alcoa perspective, very similar to Siemens and the infrastructure Mike spoke about.

The way we look at diversity is, we want the best and brightest, and if you cast a wide net, you get the best and brightest, right? So, we want to make sure that we have everybody involved in the candidate slate, and we really, consciously look at, are we touching the right people? Are we filling the candidate slates with, you know, a broad breadth of -- whether it be, you know, experience, gender, ethnicity -- and then we actually pick the best and brightest from there.

So, our view is, it's incremental to our talent strategy, and so we make a conscious effort on making sure the selection process is very inclusive. And we do that through slate management.

MS. SKAGGS: Yeah, I think I would add that while we do pretty much the same from a university recruiting perspective -- and I'm sure you guys do, as well, from -- we also attend the various conferences that these particular groups have, you know, on a, you know, either it's annual; in some cases, biannual basis -- so that we can also build relationships through sponsoring of activities, and, also, through recruiting, as well.

And so that really helps us make, you know, a mark forward. I can't say that -- I think, like many companies, we are still probably lagging in our diversity numbers -- and not where we should be, and where we want to be -- but we're making the efforts through various recruiting efforts. There are very specific conferences and organizations.

MR. BROWN: I think that goes back to the comments that we made earlier about getting into the schools and changing perceptions at a younger age -- that you have to get, you know, young women and, you know, minority students at an early

age interested in this manufacturing type of career -- and that takes a sustained effort, but sometimes it's too late by the time kids get into college.

MS. JACOBS: And the gentleman right there.

MR. LADOWSKI: Chris Ladowski, from Manufacturers Alliance for Productivity and Innovation.

The apprenticeship program that you mention could be thought of as maybe exposed training -- whereby you train first, then you offer a permanent position -- or maybe confirmed to some extent.

What about extending that further in time? So, you've got a trained, skilled employee who's working over time. Do you have a program whereby, based on changes in preferences, technology, maybe your demand within your big conglomerate that you would then train down the line to either retrain into a completely new field, or make the employee more rounded so that you could redeploy geographically or otherwise within function?

In other words, to combine the *ex ante* with a bit more exposed training and education.

MR. BROWN: Yeah, I'll jump in with a quick example -- and it's sort of AMP-related, because we're working on our apprentice pilot out in Sacramento -- and focused primarily on welders.

And we're doing, you know, basically ferrous metal welding now, but we're just starting to get into aluminum and stainless steel for some of the products that we roll out of that shop.

So, you know, then the question is, okay, we've got all these welders that don't know how to weld aluminum or stainless steel. What do we do? Do we start all over again? Probably not.

So, what we're trying to figure out, in partnership with local workforce investment board and local community college is, you know, with active partnership from us, we'll teach you at the local community college what we need. We'll give you equipment. We'll provide whatever expertise we can. We'll work with the state and federal governments to get money to help support that -- and that our hope is that we would be able to, as we go through these shifts in technology and when one product line winds down and another one winds up, that we can move people seamlessly from, you know, one product line to another.

So, you know, instead of starting over again, we take 15 welders off of one product, send them to school, teach them stainless, and then when that product line comes up, they're back to work. And it's -- you know, we're in the midst, literally, of planning that out now. We've got some good partnership with the Los Rios Community College District out there.

They think they might be able to help us in that regard. And we're going to use our facility as primarily the place for them to train.

So, it's something that I think, yeah, we have to think about.

MR. BASHORE: From a perspective of Alcoa, I'll give you two examples -- the Massena example of the apprenticeship program I mentioned, the 50 -- a good portion -- I would say 25 are actually being retrained for movement of the plant. So, it's very structured on the hourly side.

A very interesting program that we leverage globally -- we run what we call rotational programs inside of the salary population, where we actually bring people in, we rotate them across plants for 18-month periods, and then we put them on global projects. And we actually give them temporary assignments through what we call our COEs -- Centers of Expertise -- to learn specific skills around smelting, refining, you

know, et cetera.

So, we've put people through those organizations for maybe a three-year global assignment, and bring them back operational.

So, we do that fairly actively within the business, and it yields fabulous results. It's an excellent program.

MS. SKAGGS: Yeah, I'll just add, another program that we have, as well, is more in our salary population. And it's our CEO exchange program, which, you know, we probably have potential talent that have been in one particular function for, you know, an extended period of time, and then we take them, and send them to another country, another function, for about nine to twelve months, to help them get a broader perspective on our businesses, and then they come back, you know, into -- really, they could either come back into the function that they were in before or into a different function, you know, as they continue to accelerate their career. So, we do that on the salary side.

We've also -- although it's not through, specifically, an apprenticeship program, we've also had to retrain some of our workers, as well, as we are building plants with different technology. And so we move them into that particular plant. They are the best of our best operators, et cetera, and we've had to retrain those, as well, and they're pretty successful at that training.

MS. JACOBS: We're going to go to the back -- all the way in the back -- trying to respect people who've been all the way back there; make sure they get in.

SPEAKER: Hi. My name's Edwin, from the Small Business Administration.

And you guys kind of talked about outreaching to different groups. I was wondering, have you done any outreach to any immigrant populations? Because there's

been a high influx of immigrants coming to this country who are already skilled workers. So, my question would be, have you provided information to these groups of people, so that they could possibly join your companies?

MR. BROWN: I think one of the things we try to do -- I think it's an excellent question, and I think that part of what we're all learning -- at least I'll speak for our company -- is that these populations that exist and the inflows of talent and the pools of talent are -- sometimes take different approaches than what we've done in the past, right?

So, I think most companies do the standard college recruiting, post their jobs on their website, contract through local agencies, and then hope for the best. And now what people are having to realize is that all those things need to change fundamentally.

So, what we're doing -- and, again, it might shock some to realize this -- but most companies -- at least the ones I'm familiar with -- you know, don't have a lot of expertise internally on this.

So, if you say to somebody that's an HR manager -- or even senior HR people (inaudible) big companies in the United States -- you know, are you working effectively with your local workforce investment boards, with the Department of Labor's infrastructure across the workforce centers? They look at you like they literally don't know what you're talking about, because they've never had to do that before.

So, part of what we're trying to do, again, for the playbook is be able to provide some expertise to say, you know, go to your local job center. And there are veterans, highly-skilled, perhaps unemployed, people, and immigrant populations that might be able to be served. And there are -- the stakeholders that can help us most in this are the workforce investment boards, the community colleges, and then some of

what we're learning from the federal government.

There's an entire infrastructure set up to help these people. And, again, our point is that that chain has stopped short of us. And what we're trying to do is pull it in a little bit now, but it's going to take some learning. So, if anybody has any ideas, we're open to anything.

MR. BASHORE: Just to build on Mike's point -- I think he's accurate, and I would say I think the strategies are more locally-based. So, I think where it's very, very strong -- around our plants that know the community -- I think there's strong outreach programs, and I think we are connected -- and, quite frankly, leveraging that talent pool.

If you look more broadly, I think other than four-year degrees (inaudible) other things that we can tap into, I think that's probably the bigger gap. But, locally, I think we do it fairly well.

MS. JACOBS: Right up front. It'll be our last question. Did you still have a question?

MS. JONES: I'm Para Jones. I'm a community college president in Ohio.

I was in South Carolina, and this is the first workforce panel I've ever heard that didn't talk about the biggest issue of workforce -- drug and alcohol. And how do you find people who can pass the tests? Is that an issue for you? It's the first one I've ever been to in many years that I didn't hear that as a major issue.

MR. BROWN: Well, I mean, I think we -- I don't think it's -- I mean, we test people, obviously.

The only people that are having drug and alcohol problems are the people in my department -- that are trying to figure out how to find welders. No, obviously, I'm kidding.

I don't -- it's not been a -- we've got -- you know, we do the best we can to create a good work environment. I mean, obviously, some people have problems. We've got an EAP, you know.

MS. JONES: (off mic).

MR. BASHORE: Yeah, we do -- so maybe just to jump in -- I think in the volumes of hire, you actually account for some sort of no-show, drug and alcohol issue, or something else. So, what you do is, you over hire in numbers. So, if I want to net 10, I might be looking for 15; get 15 qualified, maybe 10 come through the door.

So, we do actually just over-project the need. And it creates some waste in the system. But I think we now take it as not necessarily a huge issue. I think we actually take it as a table stake. This is what happens, right?

Now it will be interesting to see with some of the -- because I have plants out in Washington -- some of the recent drug law changes, right? And we are sitting back to see what happens.

So, I think we'll watch that over time. That would be the new issue inside of that space, but I think, other than that, it's over-hiring to get the number you want.

MS. SKAGGS: You know, for Dow, I don't think we have seen, actually, an issue with getting the folks in. I think maybe because -- maybe we don't see it, because folks know that we drug test -- which I'm sure they know other companies do, but -- so they don't even apply. And so maybe we're missing those folks that don't even apply.

But we aren't seeing the fallout from we've hired them, or we've made them an offer, they go through the medical screen, and then they fall out. So, we might be missing a population of folks who just aren't apply because of drug and alcohol use.

MR. BROWN: And it could be possible that the jobs have gotten more

and more complex and more highly skilled -- that it's nearly impossible to mask a drug and alcohol problem in some of the tests that we ask people to do now -- whereas, perhaps in the past, with more manual labor, you know, it may have been a little bit easier.

MS. JACOBS: Well, we are coming up on 5:00. So, despite the fact that I know there are hands that I wasn't able to get to -- and I still have, like, 18 questions that I wasn't able to get to -- I want to be sure that everyone is able to get on with their evenings.

I want to thank all of you for coming, and give a big round of applause to our panelists.

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I, Carleton J. Anderson, III do hereby certify that the forgoing electronic file when originally transmitted was reduced to text at my direction; that said transcript is a true record of the proceedings therein referenced; that I am neither counsel for, related to, nor employed by any of the parties to the action in which these proceedings were taken; and, furthermore, that I am neither a relative or employee of any attorney or counsel employed by the parties hereto, nor financially or otherwise interested in the outcome of this action.

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