

# Expanding Diversity, Equity, and Inclusion in Tech Apprenticeships

## Transcript

**Diana Elliott** – Hello, everyone. Thank you so much for attending the Urban Institute's webinar, Expanding Diversity, Equity, and Inclusion in Tech Apprenticeships. The interest on this topic has been tremendous and we're delighted to have so many attendees on this webinar to learn more about apprenticeship and how it can expand DEI efforts in the tech sector.

**Diana Elliott** – We have a great program for you today. We'll start with a bit of framing about the topic and the project and then we'll hear from our panelists about their efforts to expand opportunities and tech. Next slide.

**Diana Elliott** – So first, a bit of housekeeping. The event is being recorded and the recording will be posted online after the event, the slides and speaker biographies are available online. All participants are muted type your questions or comments into the Q&A box at any time. And we'll have a period after the panelists present, where we'll answer questions from the Q&A box.

**Diana Elliott** – Next slide. Next, thank you.

**Diana Elliott** – So, hello, everyone. My name is Diana Elliot, and I direct Urban Institute's Apprenticeship Expansion and Modernization Fund Project or AEMF, which focuses on expanding apprenticeships and tech occupations, my colleague Daniel Kuehn is also joining to frame the conversation and introduce and moderate the discussion with our esteemed panelists. For those of you who don't know about the Urban Institute, we're a nonprofit research and policy organization based in Washington, D.C. that elevates evidence in policy conversations and decision making and the evidence is very strong that apprenticeships in tech work well. Next slide.

**Diana Elliott** – So, whenever we present to new audiences who might not be as familiar with apprenticeship, we find it's helpful to do a quick overview of what apprenticeship is.

**Diana Elliott** – Importantly apprenticeship is distinctive from internships. Internships tend to be short term unpaid and don't often lead to a career on ramp. And contrast apprenticeships differ from internships in very important ways. First, apprenticeships allow people to get paid on the job training, along with classroom learning to earn credentials and certifications. Apprentices generally have structured pay increases associated with the demonstration of competencies greater responsibility and greater productivity on the job. Apprentices are typically a full-time employee of the employer, and in the case of registered programs, this can be for a year or more in duration. Apprentices are mentored on the job to employer's expectations. Apprenticeships minimize burdensome student loan debt and we'll hear a little bit more about that in the course of the discussion. Apprenticeships can be for incumbent workers or for new employees. Next slide.

**Diana Elliott** – So just a little bit of background on our AEMF project. Urban's AEMF project is a US Department of Labor funded project that started in June of 2019 and continues until June of 2022. Our

vision for this project is to expand registered apprenticeship opportunities with employers of tacking occupations across various sectors. In this capacity we engage with employers to raise awareness about registered apprenticeship and to explore it fit for their needs. We provide free technical assistance to develop and register new programs. We provide monetary incentives that offset some of the employer's costs and training and mentoring apprentices. And the goal for our project is to sign over 1,700 new apprentices. By the end of June 2022 in tech occupations and along the way will be working with at least 30 employers and supporting the start of 20 new programs. Next slide.

**Diana Elliott** – So why did we focus on tech? Well, namely, we saw that the need for new talent in tech was high. The skills were ones that could be learned on the job and the rewards to apprentices were tremendous. Across tech jobs nationwide, it's not uncommon for job postings to go unfilled. There simply are not enough employees with the right skills to fill these postings. And tech occupations are projected to grow, adding more than half a million jobs in the next decade. These are really well-paying jobs with a median wage for IT jobs. That's double the national median. Next slide.

**Diana Elliott** – Meanwhile, computer science classes in the US lack diversity and are not necessarily addressing equity and inclusion in the profession. Furthermore, the demand for seats in computer science classes outstrips the supply of what is offered in those traditional educational institutions. Right now, there are 10 times the number of open computer science jobs as there are those who graduate or yearly with a CS degree. So, there's tremendous demand for people with computer science skills to fill these jobs and we just don't have enough formalized training opportunities in the US. Next slide.

**Diana Elliott** – Tech occupations are incredibly apprenticeable. There's growing dissatisfaction that computer science education in the nation's colleges and universities is not immediately relevant to the work on the job. In other words, there's a lot of on the job learning that has to happen for anyone who starts in a computer science job, even if they have a computer science degree. And training has become more and more democratized with various entry points - free or lower cost ones - to help people learn the fundamentals, even among employers, there's a growing recognition that a four-year CS degree isn't needed for many IT roles. Next slide.

**Diana Elliott** – So, the evidence really underscores that apprenticeship is a viable solution for hiring and tech. Apprenticeships to draw from candidates who don't necessarily have degrees and credentials but have deep potential. So, it's a way for the industry to build the talent itself to bring in greater diversity and to create workplaces where new perspectives can foster innovation. So now, at this point, I'm pleased to turn over the conversation to my Urban Institute colleague Daniel Kuehn.

**Daniel Kuehn** – Alright, thank you, Diana, and thanks everyone for joining us for this discussion on expanding diversity, equity, and inclusion in tech apprenticeship. I want to echo Diana's excitement about the interest that you've shown in this topic and I think we'll all learn a lot from our panelists today diversity, equity, and inclusion and apprenticeship has been recognized as a policy.

**Daniel Kuehn** – In the 1960s, 1970s legal efforts to combat racial discrimination in apprenticeship programs became a cornerstone of emerging affirmative action and equal employment law and practice. And the 1990s, the Department of Labor began awarding women and apprenticeships and nontraditional occupations grants or WANTO grants to come combat the enormous gender disparities and apprenticeship the persist this day.

**Daniel Kuehn** – More recently, in 2016, the Department of Labor released updated EEO regulations that prohibit discrimination on the basis of disability, age, sexual orientation and genetic information. Like many occupations, tech jobs have long standing gender and racial disparities and employment retention and promotion. And these disparities are also reproduced in most tech apprenticeship programs. The data that we have on registered apprenticeship suggests that only about a quarter of tech apprentices are women, which roughly matches women share the tech workforce as a whole. Women of color have an even more difficult time accessing apprenticeship opportunities. Inclusive apprenticeship programs ensure that everyone has access to high quality training in job opportunities and guarantees that diverse perspectives are brought to bear on tasks and problems in the workplace. Next slide.

**Daniel Kuehn** – So, to explore strategies for inclusive tech apprenticeships, we brought together a panel represented in several diverse perspectives. We've invited several employers of a process, including Nicole Brown, senior principal IT security consultant at Carter Enterprise Solutions and Heather Terenzio, CEO and founder of Tectonic. Employers are the backbone of every apprenticeship program because they provide apprentices with a paid on the job training experiences and frequently serve as the sponsor of the apprenticeship program itself. We're also joined by Michael Ward, Jr., President and CEO of the Austin Urban Technology Movement or AUTM. AUTM bridges the gap between the Black and Hispanic communities and tech employers for job placement, career development, and network opportunities. Girish Seshagiri also joins us as an employer of apprentices, but more recently, he's been doing the difficult work of developing and registering new apprenticeship programs with HBCU's in South Carolina. And perhaps most important of all, we're excited to be joined by Sierra Butcher, who is a registered apprentice in a tech apprenticeship program. Sierra has had person experience applying to apprenticeship programs and she understands the what it takes to persevere through the training.

**Daniel Kuehn** – In the first half of our conversation, I really wanted to talk about panelists experiences with inclusive hiring. How do we get a group of diverse apprentice candidates through the door? Then I want to move into a discussion of how to support apprentices from underrepresented communities during the apprenticeship and through successful completion of the program.

**Daniel Kuehn** – So, to start off, I'd like to ask each panelist to introduce themselves. We have a big panel today. So, to ensure that we have time for a great discussion. I'll ask you to share your name, how your organization is involved with apprenticeship training, and then share why you think it's important to have apprenticeship programs that are diverse and inclusive. So, let's start with Nicole Brown.

**Nicole Brown** – Good afternoon, everyone. My name is Nicole Brown and I am the CEO of Carter Enterprise Solutions, and we're located in Hyattsville, Maryland. Our company has a cybersecurity apprenticeship. That is the first cyber specific apprenticeship in the state of Maryland. We serve in a dual capacity as a related instruction provider, as well as an employer. We feel diversity is really important in the cyber security industry because statistically, we lack diversity as it relates to people of color, women, as well as individuals with disabilities. So, we're looking to expand our audience base to reach out to other audiences.

**Daniel Kuehn** – Sierra?

**Sierra Butcher** – Hi. How's everyone doing? My name is Sierra Butcher. I just graduated from the Expansion Step It Up America program down here and Alpharetta, Georgia in the Atlanta area. And I got my job at Fiserv, which is a fintech company down here in Marietta, Georgia, as a cyber analyst and I feel like apprenticeship programs are very important, because it just shows diversity and inclusion and someone like

me who actually went through the program, I can actually see some representation of someone that actually looks like me when I get into these companies and when I start working in corporate America. So, I really think it's important. I have people on my team that actually look like me, that I can connect with. And that knows some of my experiences, so inclusion is very important, diversity is very important, and apprenticeship programs for minorities, military people, women is very important. Thank you.

**Girish Seshagiri** – Hi, good afternoon. Can you hear me? Okay. Again, thank you, Diana, thank you, Daniel and the Urban Institute. I'm really glad to be here. I'm a member of the board of directors for HP information technologies. HP is a native American and service disabled, veteran-owned and a fast-growing company that was originally headquartered in South Carolina. I'd be talking today about the current status of a multi-employer multi college university initiative. That HP partnered with South Carolina State University and started that like the beginning of this year, and I like to recognize Dr. Swain. He is the Chair of the Department of Computer Science and Mathematics at South Carolina State. This initiative is really due back from our company to the communities where we operate and we'll talk about the details a little bit later, but I do want to share a disclaimer. The opinions expressed are mine and not the companies. And again, thank you, Dan.

**Daniel Kuehn** – Heather?

**Heather Terenzio** – Thank you for having me here today. My name is Heather Terenzio, I'm founder of Tectonics actually recently changed my role from CEO to Board Chair, but I founded Tectonic 15 years ago and we were having the same problems that everyone else was having with hiring and hiring for diversity. And so about five years ago, we decided to be the change we wanted to see in the world, and we started working with lots of different models, we created our own apprenticeship program, and started bringing people on board and training people side by side, because that's how everybody learns technology everyone learns side by side with a more senior level developer. And we discovered that being an apprenticeship program actually had a federal designation to it and that there were guidelines and standards and so we sought to get that kind of designation. And took us about 18 months and this is five or six years ago, but we became the first software development apprenticeship program in the United States, and we've been growing aggressively ever since. But more and more people are realizing that a college degree isn't the only way into a tech profession and are realizing that people get into this profession through all different kinds of avenues. So, we're excited to be proponents of the apprenticeship model and to help keep it growing and help increase its reach throughout the United States.

**Daniel Kuehn** – Great. And Michael.

**Michael Ward Jr.** – Perfect. Well, good morning, good afternoon, good evening, depending on where you're tuning in from. Thank you so much for joining in today and shout out to the Urban Institute for reaching out and inviting the Austin Urban Technology Movement to the conversation. So, my name is Michael Ward, Jr. I am the President and CEO of Austin Urban Technology Movement. And we guys connected through apprenticeships because we focused on workforce development inside the tech space. I have a background and work at Oracle doing back end and front-end technology. And during that time, we realized that there was a lack of representation of the Black and Hispanic communities inside the tech industry across the board. So, in 2018 I left corporate America and actually led and started Austin Urban Technology Movement to really have the deepest impact we possibly can inside the tech space by increasing representation of the Black and Hispanic communities. And one way we can do that is through apprenticeships.

**Michael Ward Jr.** – The reason why apprenticeships is important, is because it removes some of the barriers to have been created that makes it very difficult for people to become self-sustaining. Technology is one pathway. I definitely support and push technology. There's other opportunities as well. But there's a lot of barriers that make it difficult for those that are low income, from those that are on the underrepresented, from those that are underserved just to get started. And get to get their foot in the door and we realized that through apprenticeships, and this is one way where individuals most in need can become self-sustaining, but at the same time, now employers get to benefit by making it very easy for them to find talent employ people and really express, what is needed from that employers perspective for the individual person because you know every company has their differences, has their tweaks and things that are very special to them. We'll do an apprenticeship you really get to start from the ground up and rebuild your, your entire workforce, your entire pipeline. So very excited for the conversation looking forward to dive into back to you, Daniel.

**Daniel Kuehn** – Great, thank you. We're very happy to have all of you here with us today. So before jumping into your experiences with solutions. I want to frame this conversation by digging into the barriers and the structural discrimination that women and people of color face and accessing apprenticeships. So, what do you think are some of the barriers that women and people of color face in accessing these opportunities?

**Girish Seshagiri** – I think one of the one of the barriers is – we just talked about the fact that every job requires a four-year degree and so on. But, but, in fact, what does happen, I think, is particularly from including employers perspective when we go recruiting in colleges like we typically do, we find the Black and Hispanic population are disproportionately the seeming a smaller percentage of the two-year and four-year degree that are offered. So, this is sort of, in my opinion, resulted in a separate and unequal outcome of higher education in this country and the pandemic put a spotlight on it. On a percentage basis that the minority community lost more jobs during the pandemic, and these were low paying, low-skill jobs to begin with. So that's one of the reasons why we're partnering with historically Black colleges and universities, because they went already coming is already there. And we need to do is to do the apprenticeship because of the competencies and skills that they need. And so – so if among the people that are attending if you're a historically Black college, university, or the employer wanting to work with HBCU's for degree apprenticeships please reach out to any of us, myself, or contact Diana Elliot.

**Daniel Kuehn** – Michael were you about to answer?

**Michael Ward Jr.** – Yes, I'll chime in there and everything that Girish said I definitely do agree with that. I would frame it that there's a disconnect between our education system and the actual workforce or what's needed inside from an employer perspective. I believe that Heather touched on it that in order to really accommodate and understand technology you need someone Like holding your hand along the way. And we need to accommodate for how much the industry itself is changing. You know, technology is one of the newest endeavors as us as a society. So, because of that, we need to understand that throughout the generations it just got faster and faster, right, it got more complex more complicated. So thus, we need to create a stronger foundation. So, when I think through some of the barriers that are impacting, yes to Black and Hispanic communities, but just overall really our community. Is that the actual education that's being taught doesn't add up to what is needed for the job. We need to rethink and actually start training individuals' transferable skills.

**Michael Ward Jr.** – So now with these skills, they're able to do the job and show that through repetition, so we have to expose people to these opportunities, let them get excited about wanting to even work inside the tech industry. And in order for us to do that, unfortunately, we can't rely on the education system

because it's outdated, it doesn't match how we are processing and dissecting information today. We need to train individuals need to open them up to different career opportunities. Show, them going to a four-year school is one option, but there's certifications, there are apprenticeships, right, there's other ways for you to generate the knowledge and the skill sets that you need in order to move on to the next step. And lastly is just support, right, the individual that we're looking to train, whether it's women, whether it's the Black community, the Hispanic community, they need more for it, given the systematic racism that's been going on in our society. So, you can expect someone who doesn't have internet access, who doesn't have a computer, who's never understood even the ability spoke the tech language to be able to be on the same level as some who's had that their whole life. So, we got to come from this, this issue from a from a real mindset of understanding that individual person. And that individual person is going to be different based on where they're living right based on what to their social capital is that's how we're going to be able to create real solutions that match, which is exposure, method of guidance, etc.

**Nicole Brown** – Daniel, this is Nicole. I'd like to comment. Being a minority, also a female being in cyber security, I can honestly say I represent a small percentage of the workforce, very small. And I feel that some of the barriers that have been touched on apprenticeship is very important because it does allow individuals another option to college. Now I'm a huge advocate of college HBCU graduate from Norfolk State University, and the barriers that exists because it's hard for certain individuals to gain access to education. We want everyone to feel that they have the opportunity to attend college, but the fact is that college is extremely expensive now and you know you can go to school and it can cause a family \$25,000 in just a period of three to four months and a lot of families just cannot simply support a \$100,000 bill every year, and it can really cause a shortfall in the industry because many minorities are unable to reach those goals, even with scholarships, you know, you can get a scholarship and the chances are it's not going to cover the entire bill. So, apprenticeship is just an opportunity to present those same educational trainings and make it available to individuals who may not necessarily have the pathway to call that will have the desire to be successful. So that's why our program we are trying to gear it towards that out of school youth those individuals who really have the desire to be successful and the desire to explore new career pathways, but don't have the finances to actually attend college.

**Daniel Kuehn** – So, Sierra, I'm curious. How did you find out about your apprenticeship? And what was the biggest motivator for you to decide to apply to that partnership program?

**Sierra Butcher** – Honestly, I found out about the apprenticeship program through my friend. I never even knew what an apprenticeship program was after going to college. I didn't know anything and she was just telling me about it and it just sounded like foreign to me because I'm like, "okay, so you get to go to this program for four months, they're going to train you, and tell you everything that you need to know and they're going to give you a job like I didn't even need to go to school." I could have did this back when I was 18 years old. And all the energy money and, you know, stand up late nights in school. I could have been doing this, I could have been in this career path 10 years ago, you know when I graduated high school. So, it just seemed like it was very foreign to me. Just like Mr. Michael and Ms. Nicole said growing up in inner city, I'm from Wilmington, Delaware. So, growing up in the inner cities is the same stuff that you see going on high crime, no programs nobody advocating for us no money from the city and state local governments going towards the inner city and it's just like we don't have those resources. We don't have those that money. We don't have people that's like, "hey, put the money over here. Hey, let's start this program, you know, for people that are living below the poverty level to pull them through the pipeline." So maybe it's time for them to graduate high school, they can have those options versus just saying go to college, go to college, go to college. Okay. What school am I supposed to go to? How do I, how do I get financial aid? I didn't know how to fill out a FAFSA when it was time for me to go to college, like I had no help, no guidance

at all. No guidance at all. My mom never went to college. My dad would never went to college. So, I never had any guidance. So just, um, it was just a blessing for my friend to actually tell me about this program after already going to school, you know, and I just, I couldn't find a job. It was in the middle of the pandemic. I just graduated in May. In the middle of the pandemic. Millions of Americans are losing their jobs. I didn't know what I was going to do. So, I said, "Hey, let me just fill it out." I just start filling out a million jobs didn't even know what jobs I was filling out for I just said, "I need a job." And she told me about the apprenticeship program, and I applied for that. And then someone from the actual company called me and explained to me more because it was new to her, she didn't even know completely what it was about. And then as I got into the program and start learning and just start seeing the endless opportunities that apprenticeships have that's why that's when I was able to actually, you know, finish the program meet these people become successful. And actually, you know, try to represent the company like in a panel discussion like this. This is actually my second panel discussion. So actually, just going through that experience really really helped me a lot.

**Daniel Kuehn** – Great, thank you. And, um, you know, you keep referring to the apprenticeship as a job which highlights a point that Diana made earlier. And I think a lot of people don't understand the difference between apprenticeship and internship – it is a job to support you. Heather, some people worry that there's a tradeoff between inclusivity and high standards for hiring an apprenticeship. But Tectonic proves that that's not true. You advertise to your customers that your apprenticeship program is highly selective with an acceptance rate that it's apparently below 10%. So how is your commitment to diversity and inclusion integrated into this this very rigorous vetting process?

**Heather Terenzio** – Yeah, it was actually it's surprising and was interesting to us as well when we initially started, we were focusing on women and minority candidates and then we actually had a young man show up, who was white, but he had come up through the foster care system and so we wanted to give him a chance as well. And so, our definition of diversity kept changing over and over again. And we actually it's a constant discussion that we're having of what does it even mean to be a diverse candidate? And so, we went away from just trying to pick people based on diversity statistics and really just take the best of the best, and what wound up happening is that the best of the best turns out that it's a very diverse group of folks and we pay people to be in our program, we give them counselors along the way. There's a career coach as well to help them not only with us, but as they transition from us into one of our clients. And it turns out, when you take all the barriers to entry away the diversity, just starts showing up. And so, we don't do any selection for diversity whatsoever. And I'm in Boulder, Colorado, which is not an incredibly diverse town to begin with. But our diversity numbers are three- and four-times industry average for women, minorities, and veterans and so you can keep the bar really high and you can have a really diverse class of folks as well. So, we're really proud of that. We love our numbers. And I also feel like diversity begets diversity. So actually, exactly what Sierra was saying, most of our classes here because they heard about us through a friend. And so, when diverse candidates tell their friends that this is a program, we actually wind up getting more and more candidates who are great for our program. And so, I'd say with every class we have at least a third of the folks in there were referred by a friend of theirs.

**Daniel Kuehn** – That's great. Thank you. So, Michael, AUTM makes a point of reaching out to Black and Hispanic students in high school and college to bridge them into tech jobs and apprenticeships. How and where do you recruit for these programs and what's been successful so far For AUTM in AUTM's experience?

**Michael Ward Jr.** – Sure, so I'll answer the latter question first. As far as what's been successful being and I think a lot of times organizations or entities, they push out different initiatives and they do it, maybe once a

year, anything okay and I'm done. And it's like, no. In order for you to actually address this problem, you have to create a consistent routine with this right consistent schedule that fits so you can have a build up over time. So, the number one thing that has been, you know, our success has been working with organizations, working with institutions, working with employers and having the same message that this is a problem that we're looking to address. In order for us to address that is not going to happen within a year, it's not going to happen in 5 years or 10 years, but we need to work every single day and to reach that goal. So as far as how we're engaging with students, we do with several different ways. We do several different events and programming. Right now, we're actually in the middle of 12 days of AUTM, and it's 12 days of events promoting digital equity promoting upscaling and re killing the Black and Hispanic community. So, we have multiple opportunities for those that are part of AUTM.

**Michael Ward Jr.** – Whether you're just part of the AUTM community you're getting trained by AUTM to have a touch point to engage with those I look just like you that are going are moving through that they're tagged journey right so outside of our events. We work with institutions. So, working with Houston Tillotson University, which is a HBCU down here in Austin. So drastic. I said, I want to talk to you about some things. So, we have Houston Tillotson University. We also work with Austin Community College. We work with St. Edward's, so institutions is definitely our number one partnership, when it comes down to engaging with students outside of institutions, I should say, we also work with organizations. We work with American Youth Works who focus on at risk youth and those have been through the foster care system. We work with building Promise USA that focus on those who have been criminalized. So, in order for us to have the impact that we want to have AUTM can't do it by themselves, of course not. All right, we have to work with institutions that are working with the students that we're serving, we work organizations that are working with the adults that we are working with. We're working with those individuals in the same pockets that we're moving in. So, we can collaborate and have a deeper impact, in order for us to do that we have to be consistent. We're always preaching and talking about; we have to create a relationship and build on everything that we do until we actually address the goal. So here in Austin we have a master workforce plan to train 10,000 individuals out of poverty. Great. Once we have 10,000 let's do 20,000 right let's do 30,000 let's continue to build moving forward.

**Daniel Kuehn** – Great, thank you. Yeah, there's a lot of partnerships with HBCUs that have come up. So, Girish, you're currently working with a coalition of HBCUs to develop registered apprenticeships that will result in a four-year degree. Why do you think that these students that you'll encounter will be attracted to an apprenticeship, which requires extra effort and extra work rather than a standard bachelor's degree program?

**Girish Seshagiri** – Yeah. Can you hear me? Now, okay, that's a good question. And, but let me just begin with a caveat there is a little bit involved for trying to do this a little bit of build it they will come. But I'll also explain to you why I think that this, this kind of an approach would be popular. But the second caveat is yes, the degree apprenticeships are not for everyone and so what we need to do, like, in our case, the, the colleges themselves, the HBCUs promoting the benefits of apprenticeships to those students that are enrolled in their computer science or cybersecurity degree programs. And what needs to be emphasized is primarily the learn and earn aspects of partnership and here let me just mention to you that in the minority community. Many of the youth attending colleges are also the breadwinners their family, and I think that it would be attractive to them to give up this they make jobs in favor of a paid apprenticeship that's a guaranteed pathway to a well-paying job. And this is exactly what happened in a project that we did in Illinois. And we partnered with a community college there and have the students that were enrolled in an associate degree in computer science there and we asked them, "with the college help, how many would be interested in an apprenticeship." And a percentage of them said yes and it was between 30 to 50%. Then we



did an aptitude test of those people that said that they would like to get an apprenticeship and with a cut off score and that's the group that we employers actually recruit and hire. So, I believe that working cooperatively brought employers and colleges and keeping this idea of a learn and earn dual model and a guaranteed job at that. One other thing that I do want to mention is that the apprenticeships are about acquiring competencies and not just a degree. So then employers should take the lead by assigning the mentors for on the job learning part of the apprenticeship program. Focusing on not just the hard-technical skills but also some of the soft skills. So, I think that that kind of a process. Will start making some inroads it does getting more of the minority community, particularly the, the African American community and expanding community to come into apprenticeships.

**Daniel Kuehn** – Great, thank you. Nicole, in your cybersecurity apprenticeship program you identify out of school youth as an important target population for you, and we know that that can be a difficult population to reach into bring into any program. So, what have your experiences been in successfully bringing out of school youth into apprenticeship?

**Nicole Brown** – I must agree with Michael. Consistency is the key to any successful program. We are looking to have an incoming class of approximately 30 students here in the first quarter of 2021 and our outreach program has really been about building those relationships that Michael spoke about. We are located in Prince George's County, Maryland, and we've been working closely with the Prince George's County Employment Center and Prince George's County Employee and Economic Development Center. As it relates to resources, they've been great. We also have relationships reaching out to the youth programs and the high schools within our community. And honestly, a lot of the students and people who are interested, have been on finding out about the program through the apprenticeship portal for the state of Maryland. We received a lot of outreach from that particular resource. And so, we really excited. We've been making some great strides with our consistency as it relates to funding as it relates to participation and we're engaging more employers as the program grows. So, we're really excited and we're getting some really positive feedback.

**Daniel Kuehn** – Great. Alright, so we've talked a lot about outreach and recruitment and getting apprentices through the door, but once they've started in the program apprenticeship is difficult, you, you're going to class you're working a job you're learning on the job. And some of these programs can be very long. So, it takes a lot of effort to get through a program even after you've walked through the door. So now I want to move into some questions about once we've got this diverse pool of apprentices, how do you sustain them through the apprenticeship through to completion and through the jobs afterwards. So just want to start again with it with question for the group, women often encounter a male dominated workplace culture in tech companies. It's part of the tech industry, so much so that many leave. So for the employers, especially on the panel, but, but for anybody, have you made any changes to the workplace, to make it more supportive for women and people of color to thrive in advance, once they're in the apprenticeship?

**Heather Terenzio** – I can start with that. So, um, I think the nicest thing about working with Tectonic is that when a woman walks into our organization, she sees a lot of women. And so, and a lot of women at every level of the organization. So everywhere from CEO to senior leadership to the executive team on every level and everywhere. And so I think what's really important and I think someone else maybe Nicole mentioned this earlier is that you could see yourself and other people and you could see this is a place I can succeed because I see other people who look like me moving up through this organization. And, you know, there's all kinds of classes and sensitivity training and all that. But nothing beats seeing other people who look like you succeeding and moving up through the organization. So I'm proponents of all those other

things and we have you know mothers rooms and, you know, flexible work schedules and all that kind of stuff, but really nothing beats actually seeing that you're walking the walk and that there's other people there who are succeeding in your organization.

**Nicole Brown** – Daniel, this is Nicole, I can honestly say I can actually relate to Sierra's story as she introduced herself earlier on, because honestly, I'm a product of similar background as Sierra. So what I have done with the program in general, because I have faced many hurdles within my career, I never gave up really, it just made me want to be more aggressive in my approach as it relates to certifications, training, just to make sure that I can always compete. I think that's the biggest thing. It's hard as an African American female or minority female for us to compete. A lot of times people in corporate America, in the conference room, your opinion may not be as weighted as someone else's opinion and that's something that I have really, really struggled with throughout my career. So I tend to make sure I'm always prepared, making sure that you know I really if my counterpart read an article once, I had to read it three or four times just to really make sure that I was always ready for any questions and just be able to represent myself with the fullest potential. So, what I do with the program - I'm not highly diverse in workforce development. I'm a cyber security professional and instructor, but what I did, I took all my experiences in the classroom at work and I actually incorporated it into the program. So, we are really looking to implement things that help not just women but those classes that are challenged within the cyber security industry as a whole. So, women, and we are launching something that's really new, and I see in the chat that we do have individuals, they may be members of the deaf or hard of hearing community. That is a challenge that we are taking on in 2021. We have a great partnership in place. So, we are venturing into other arenas that a lot of people have shied away from so look out for our ASL program coming up in 2021.

**Daniel Kuehn** – Great. So, Nicole. You mentioned partnerships to support apprenticeship. I'm wondering, Michael. Um, how do you partner with employers, maybe even not employers have apprentices to support apprentices as they go through the program once, they've been recruited?

**Michael Ward Jr.** – Oh, for sure, that that is definitely part of conversations that we're having right now. There's several entities that were talking with right now about either launching their apprenticeship for the first time, you know, they probably never had one before, or they have them at headquarters, but it's not here in Austin right now, so it's like, okay, well, how can we do what we're doing here at headquarters over here in Austin. What I would say is that, you know, conversations like this is very important. Because a lot of times when we're talking to employers is a lot of educating about what exactly an apprenticeship is right? You know they're thinking or some of them, not all of them are thinking individuals are going through a four-year degree and then moving into an apprenticeship program.

**Michael Ward Jr.** – And it's like, no, you know, an apprenticeship programs, a different pathway than going to have the four-year degree route. So, we understand just what are the benefits of an apprenticeship, you know, it's on the job training plus online curriculum mentorship component. So really letting people understand what is actually needed. First, you know, what did that investment look like. Okay, great. Now, how can we connect that with our headcount and what had accounts going to be for 2021 what I would say is that you know where their earliest ones here as far as launching an apprenticeship, you know, we're in conversations right now with the labor department in order to do that, so that that's the phase that we are but as we think through, Okay, how we're going to be launching and turning all of our boot camps into apprenticeships right good that's ultimately the goal.

**Michael Ward Jr.** – Is that we want everybody to be able to be employed and lead to a full-time job. Great. Let's just transfer all of our boot camps and we currently have into apprenticeships by working with those

partners that make the most sense. So now we're having those strategic conversations about how invested are you really? What does your level engagement look like? Do you fully understand that this is what's needed for individuals that were targeting to go through these apprenticeship programs? Some of them are going to need assistance with internet access to devices. We're going to make sure that they have a mentor that there are guided through this process. So really having those expectations and but like, Nicole said, it's all about partnerships. Having tech companies that are fully supported and looking to dive deep, you know, not just a surface level partnership, because we know, those are those are good for an extent, but we're now we're looking for those that are thinking about investing, right. So, let's tap into your recruiting budget, let's tap into to your diversity, equity inclusion budget, let's tap into your corporate social responsibility budget. Great. What, what about the rainy-day budget, can we tap into that too. And let's start investing into move forward.

**Nicole Brown** – Daniel, can I kind of piggyback on Michaels comments?

**Daniel Kuehn** – Of course.

**Nicole Brown** – So Michael what have been some of your approaches, because in the delivery to the community to other employers, because, as I stated, we wear a dual hat here within my program, many employers with technology, especially cyber being a new type of apprenticeship, just starting to be accepted in the industry. It's really been hard to get employers to understand the benefits of the program and to really get them to participate. So, what we've been needing funding to foot the bill, the initial bill of the concept to get employees buy in. So, what are some of the techniques that you may have been successful in in engaging employers from that perspective.

**Michael Ward Jr.** – For sure, for sure. The first thing that I was is reach out to the city government that's there because there should be either some city or even state funding that support skills development through different organizations. So, depending on their size that's the first thing that I would say, is that the employers can go after this, this, and some, I don't know, for all of them. But employers can you reach out to those funding opportunities to get those funds to pay you personally. So instead of you have foot the bill the employers can actually get the funds and work with you to some type of MOU agreement and that's been one way that we've had those conversations by saying, hey, we understand you haven't done this before, so instead of having to play the back and forth game about you understand the value, great, let me show you where you could go and get money and then leverage that money to support our causes. That's one. The second thing is connecting where their head count is going to be. So here in Austin, we go through the Austin chamber, we look at the jobs report and showing where the top 25 companies that are producing the jobs. Great. Out of those 25 companies, how many of those jobs actually matched the apprenticeships that we have. So for you, if you're looking for cybersecurity is great target all those cyber securities and saying, hey, you have 2, 3, 5, 10 whatever job amount of postings, they have on their board and you're saying, fine, out all those job recs let's do one apprentice right now. Let's just start with one apprentice because now what you're doing and making it very easy for that employer and they don't have to think to do the heavy lifting of like a full head count and try to plan, you know, a year or two years out. Because the apprenticeship is going to take some time. So, I would recommend starting with one. And then the last thing that I will say, is to look at their own books. Right. How much are they currently investing in for recruiting? How much they constantly pay right now for any other services that focus around talent management or talent acquisition that isn't producing the outcome that they need? And I know they have a whole bunch. I mean, the way we know issue is today, right. So, so it's not like they can find you know X amount of dollars to start with one program and the moment they start with one program they'll see the benefits of it and you'll be able to move in, day out. So definitely reach out to external funding so you don't have to foot the

bill. Start off with one apprentice just with the with the employers and then let them know, hey, you're already spending this amount in these other areas. Let's just move some of that funding over to this apprenticeship program, so we can get started.

**Daniel Kuehn** – Great. Um, so this conversation about what employers need to get started and apprenticeship is important, of course, because you can't have an apprenticeship program without an employer. We also often think about the costs of an apprenticeship program. But I'm curious, Heather and Girish, you've served as sponsors of registered apprenticeship programs. And so, you know, they're also benefits of having apprentices as workers. So, what are the most critical contributions that a diverse group, specifically apprentices, make in the workplace, having a diverse group of apprentices. And how can employers most effectively support their success?

**Girish Seshagiri** – Heather, do you want me to go?

**Heather Terenzio** – Sure.

**Girish Seshagiri** – Okay. All right. Thank you. Dan, first of all before I answer your question, I want to recognize both Sierra and Nicole for a very, very compelling personal experience that they related and I'm convinced that going forward, if we have more people like Sierra that actually talked to that community, and they're going to be more believable and I think more young people would come into apprentices from the minority community. Back to your question, I tell you this, from personal experience I've managed we're the software development business and software development is done with teams. And so, I managed over 100 software development project teams. And I could tell you that the teams that were more diverse consistently perform those things are not and our customers actually received the results bought for cost, schedule, and quality and things like that much better by orders of magnitude from diverse teams as opposed to that. So, employers, I think we need to recognize the business value of diversity in that, that it will actually contribute to our bottom line.

**Girish Seshagiri** – By the performance of these diverse teams. The other thing I think we employers can do is we can start by setting examples from the boardroom itself. In terms of for equal opportunity, and recruiting, and pay, and promotion and so on. And I think employers should also be somewhat take affirmative actions to address racism, xenophobia, homophobia and other biases in the workplace. There's no absolutely no place for those and then paying attention to the results that you're getting from the diversity and you would, in fact, run your whole company based on having a diverse workforce.

**Heather Terenzio** – Thank you. Yeah. And to add on to that we are very clear that we are not a charity. We are a for profit business. And we know that having more diversity in your company means that you will be more profitable company. Most people have heard the story about the Apple Watch when the Apple Watch first came out, it was actually a failure because it didn't work on darker skin and it didn't work on tattoos. And that's because nobody who was testing that technology had dark skin and nobody had tattoos and so they actually had to recall, and we change the software in there to make the change to the Apple Watch. And we have clients, you know, from all different kinds of backgrounds and they want to build products that cater to all different kinds of people. And if you're building products just with white men. There's a good chance that your products only going to appeal to white men, we have a client who's actually building a robot for the home. And they know that women make most of the buying decisions for the home and so they came to us saying we specifically want female engineers on this project so that they have an input into this robot before we start trying to sell it, because we don't want to get two years down and development cycle and then find out that women want nothing to do with this robot that we're building. And so they

were really intentional about making sure that they had a team. That we helped them build that had people from all different kinds of backgrounds, all different kinds of skin colors and would have input into this product from day one. And I think more and more companies are starting to recognize that that you can't just wait till the end of the development cycle, which sometimes takes years to make sure that it's going to appeal to everybody. And so, like I said, we're firmly, not a charity, you know, we don't want you to use us because you feel bad or you feel guilty about your diversity numbers. We want you to work with us because it's the right business decision for your company.

**Daniel Kuehn** – Great, thank you. So, Sierra, I'm curious, you've successfully moved through your apprenticeship since the late spring and what I have to imagine is when the most difficult times to start an apprenticeship in a long time, and you've been successful and working hard. What kind of supports in the apprenticeship program, what factors in the apprenticeship program have been most important for your success?

**Daniel Kuehn** – It looks like you might be frozen. So, you might have dropped off.

**Daniel Kuehn** – Okay, um, so I Michael just continuing this conversation about employers. AUTM partners with local employers to grow diverse apprenticeships in Austin. What might keep employers from using Apprenticeship as a training strategy? What are some of the concerns or objections that you hear?

**Michael Ward Jr.** – Sure, definitely. I think everything that Heather and Girish said, but the opposite, right, that they don't believe that that diversity is actually going to be impacted them. They're really thinking more the upfront cost about the apprenticeship, versus the return on the investment. And I think that right there's just a different focus that they need to have when they're thinking about apprenticeships what I would say is that there are no this is a generalized statement, but they're stuck in status quo. You know they're; they're used to the way we've been recruiting, the way we've been hiring, the way we've been doing it for so long. However, at that time, you know, we weren't the country, you know, or the or the groups of individually, where we are today. Right. So now we're more diverse. Now we have more generations. Now we have different understandings. Just the way we process information is different than what it was 10, 15, 20, 30, 40, 50 years ago, right? So, in order for us to do that we really need to think about what is it that we need to do differently to accommodate the changing times, and if you're still stuck around status quo, I mean COVID-19 hit us hard and COVID-19 has showed that oh, we actually have not developed our community entirely. We have not provided enough options for everyone to be successful. So, when something like this happens, the economy, the country doesn't have to shut down, right. But just to move, even if we have to social distance or leverage technology or go behind a virtual screen. We could still do that by moving forward. So, I think a lot of the barriers is more so on the employer side. Not understanding the landscape and not being able to shift to accommodate that pivot that we need to make right now. So, if you're thinking about increasing your market share, if you're thinking about accommodating your employer and becoming an employer of choice. Well, in order for you to do the, you have to understand that the generations that were in the workforce are different now. And the way that we are engaging, and working is different. So, you have to be innovative as an employer to really do things differently because not everyone is focused just on salary right. There's different reasons why someone is not working for a for a company in order for you to do that break down those barriers and really think about being innovative that is touching the individual people you're looking to work with.

**Daniel Kuehn** – Great, thank you. Um, we are getting a lot of great questions in so I'm going to extend the audience Q&A because we want that input, but before I do, it looks like Sierra is back online.

**Daniel Kuehn** – So, I wanted to ask you, um, you are hard at work in an apprenticeship program right now and a really difficult time to be an apprenticeship program. And so, I'm curious, what are the most important supports that are keeping you going and ensuring that you're successful?

**Sierra Butcher** – Well, we have a life coach. I believe someone said something about having a life coach. I think it was Ms. Nicole. So, we have a life coach that we meet with every single day before we even get into our technical into the technical aspect of the training. So, every morning from eight to nine we're meeting with our life coach. We're talking about the soft skills because a lot of us push the technical skills, the hard skills and you know this program, you need to do that program. But what about the soft skills? What about teamwork? What about leadership? What about communication and learning how to talk to people and work with different types of people? A woman might think different than the man, someone who grew up in the suburbs might think different than someone who grew up in an inner city. So, the soft skills they hold just as much weight as the technical skills because you can teach technical, but, you know, just making sure we are all on the right page about those soft skills. So that's very important. And also, group work. So, we do a lot of group work and individual work. I was one of the people that came into the program. I didn't know anything about technology - computers intimidated me. I never really wanted to pick up a computer, other than my phone so you know, just me making the type of person I am I just threw myself into this because I wanted to try something new so just them actually making us feel comfortable and given me a chance. You know, that's just, that's just a resource in itself because they could have easily said, oh, she don't know anything about computers. You know, let's just go in and give our slot to someone else. So just given us a chance to actually prove ourselves, I was the only woman in the class, only African American woman in the class. So it's like, you know, I already felt like I didn't really belong there, you know, but them actually giving me a chance us doing our group work and them being there locking arms with us every step of the way until graduation, even after graduation. We're still doing weekly meetings. Is there anything that you need for me? Even though I am working in my company right now they're still checking on me, they're still, you know, wanting us to be a part of, you know, conversations like this. Weekly meetings they just, they just a support system. It takes a village. You know, so just having that support system. Having those people, just contact me and let me know that Sierra, we're still here for you. Anything you need you know all the way down to every Friday they're reminding us to make sure you're submitting your time, you know, just that support system is very, very important, especially for somebody like me who's actually new to technology and when I came into this. I had no clue what was going on. So, I felt very comfortable actually moving through to completion and after completion of the program because of the warm embracing support that program in the apprenticeship has.

**Daniel Kuehn** – Great, thank you for sharing that. So, as I said, I'm going to move to some audience questions because we've got so many good ones. You can still submit them in the question and answer box. So, the first one, a couple questions are for Heather. The audience is curious how you define the best of the best when we are talking about your hiring what set of standards qualify someone is the best? And then you also mentioned removing barriers to entry and that once you remove those barriers, the best of the best is a very diverse group. So, they're curious, what is the best of the best? And what barriers entry, you ended up removing>

**Heather Terenzio** – Thank you great questions. So, software career. I'm sure Sierra can tell you it's hard, right? We need people in this industry who are willing to work, who have grit determination ambition and that's what we're screening for we're not looking for someone who knows JavaScript or PHP or anything, we're looking for folks with grit and determination and so we have, it's a 11 step process for getting through our interview process and it's even just we give you like three pages of instructions to put up a website. And all we ask is that you go line by line by line do exactly what it says. And you get a website up and running.

And so, it's all these challenges that just show us that you really want this to be your career. And a lot of people get into software because they hear it's a high paying career. But you have to be able to do this eight hours a day every single day. And so, you can't just get into it because you'll make a lot of money. You have to get into it because you actually like it. And so the challenges that we put in front of you are really designed to even tell you what software is to give you work to do to get through it and make sure that you really want to be here. So, in addition to these challenges. There's in person interviews, there's a fit score that we have, which means that we actually measure you against all the folks that we've had in our program that have made it successful and make sure that your personality type your collaboration, all those kinds of attributes. A lot of the soft skills kind of stuff. Maybe you don't know about teamwork or working in an office and that kind of stuff. But we just want to see that you're willing to learn it and that you're open to it. And that's what all these tests that we give you are designed to do. I shouldn't say tests, they're challenges. But it's almost like a bunch of two foot hot hurdles to make sure that this is what you want to do, because think about it. We pay you to be here. And so, there's not a lot of programs out there that actually pay you to be in our organization. So, we want to make sure that you really want to be here and you're here for all the right reasons. So that's why we put, and you'd be surprised, and we start with 500 applications we ask them to read through a two page document and to put up a web page and we lose 400 of them just through that because they don't want to go through the trouble of reading through two pages. And then doing some work. So, it actually says a lot about who you are as a person just getting through these different kinds of challenges. And then can you tell me again what the second question was?

**Daniel Kuehn** – The second question was that you said that you remove barriers and once you remove barriers you found that the best qualified, we're, we're a diverse group of apprentices. So, so what kind barriers have you removed?

**Heather Terenzio** – Well, if you think about, if you can't go to college and you want to get into software career. The next logical step is a boot camp and a boot camp you have to be able to take six months off and pay sometimes \$20,000 in order to get through that, which means you can't have a job, you got to work on this. So that alone takes out a huge portion of the population. Because who can afford to take six months off pay \$20,000 and not have a job on the side so what we have done is we actually pay you, and it's a livable wage, so, you're not getting rich in the apprenticeship program, but you can pay the bills and pay the rent. And you know, that's the biggest hurdle to most people getting into this and then like Sierra was talking about, we have coaches, we have tutors, we have all kinds of people supporting you, to help you get through this program. So and even we work really closely with our workforce development center so that if you're having childcare issues or transportation issues or anything like that, we will work with them really closely and they've been a great partner, all of the work force centers in Colorado, and now we're in Nebraska, Omaha, as well, have been great partners to make sure that if anything does come up that we can help you get through that and I will say even once you get into our class. We take 20 people per class. 18 usually make it all the way through. And what's really interesting to us is, is that it's not technical reasons why people drop out. It's because life gets in the way they can't get to us childcare falls through you know, the family system falls apart. Something like that is what prevents people from actually getting into this career. So we, we make sure we do everything we can, so that life doesn't get in the way of your career and that you can, we can help support you through this. So, that's what we mean by barriers.

Daniel Kuehn: Great, thank you. Um, we received several questions about inclusive apprenticeships for people with disabilities, which hasn't come up in a lot of detail, so I'm wondering, especially if any of the employers can speak to apprentices with disabilities and supporting them and I think Nicole mentioned that and I think you're looking forward to go raise it. So why don't you start Nicole.

**Nicole Brown** – Yes, then you we are really excited. We've been working on this portion of our program since April, honestly, since the pandemic. And we started having the discussions, but we realized in April, the need for reaching out to those communities and individuals with disabilities and I see within the chat there are comments about accessibility for deaf and hard of hearing, and that is a diverse group of individuals who honestly are ignored almost, in a sense, because you really don't hear people talking about the audience, you really don't see webinars, classes, they're very, very limited resources for the deaf and hard of hearing community. Um, so I've been working with one of our partners. They're called AIM, and we have been working to come up with resources and support and also classes for individuals who are deaf and hard of hearing, and we just really hope to introduce a new career path because we just did some research and honestly based on the Department of Labor it's less than 3% of this individuals with disabilities in the cyber industry so we are really looking forward to expanding into those areas, and giving them a new career path and opportunity, but I'm not deaf and hard of hearing myself, I just realized that it was a population that did not have this type of resource.

**Daniel Kuehn** – Great. Thank you. Do any of the other employers on the panel have experience with apprentices with disabilities and how you support them?

**Heather Terenzio** – Are, actually mainly through our veteran program, we have a lot of PTSD, folks. So that's kind of the extent of it. We have looked actually into expanding into other disabilities. And we're kind of actively working on that right now. But I agree with Nicole. It's a really underrepresented. It's not giving enough attention, and these are folks who would be great in software development careers as well.

**Daniel Kuehn** – Great, thank you. And another community that hasn't come up in the conversation so far are returning citizens and others with contact with the justice system. They have challenges obtaining employment in general. In especially in some of these tech careers where security clearances might be important. There, there might be important barriers to overcome. So, I'm curious if anybody on the panel has experienced with apprenticeships and returning citizens?

**Nicole Brown** – Daniel, I know for myself in Prince George's County, I sit on an advisory board where we are working with a pool of IT companies and employers and the topic of discussion has been returning citizens and that is an area that employers within Prince George's County we are looking to start engaging more frequently, because a lot of those industries that are more favorable from returning citizens can be construction, you know, a lot of the labor communities, but we really want to really start giving individuals who are interested in IT, because every job does not require a security clearance. So that is a discussion we are currently having in Prince George's County and we are looking to be more active and engaging in IT careers as it relates to that particular audience.

**Heather Terenzio** – And I can just add that the way our business model works is that we have apprentices who work on our teams and our clients can hire in those apprentices after six to nine months of working on their teams. Now the problem with us we have had several justice involved folks in our apprenticeship program, but when they migrate from us into one of our clients if they have background checks and different kinds of standards and we do, then things get tripped up there because their career kind of stops with us and it can't move on, so our goal, though, is to find a good mix of employers who will accept people with all different kinds of backgrounds. So, we're, we've been trying, but it is a difficult - it's not as straightforward as just hiring folks with different kinds of backgrounds. It's, it's more challenging when they get out into the, you know, the bigger job force.



**Michael Ward Jr.** – Yeah. And I'll just add to that we're having similar conversations on our side. Predominantly with those companies that are ready hiring on their way do some type of fair chance hiring so targeting them saying, great, you know, you're ready banning the box and not having a felony to be something that strikes or remove individuals from applicants. So we're having those conversations with those companies to actually transition to focus more on the tech related roles right, because a lot of the opportunities that they have is within their company, but it's not good in direction that we believe is most beneficial to the individuals going through that program so fair chance hiring individuals are definitely a good starting point. But then, secondly, you know, through the workforce development office that we through other organizations that focus on the repopulation it's about working with them and through the organizations that are ready support them, right. So, targeting them and we're having those conversations with those individuals that do want to start doing, you know, hiring or working with the reentry population they're just not exactly sure what that looks like. So, we're guiding them through that progress through that process. So, we can really get some things going on.

**Daniel Kuehn** – Great, thank you. Girish and Michael had both talked a lot about the how employers think about partnership and the benefits and costs of apprenticeship and some audience members are curious if you could say more about specific metrics or data behind. Why you would want to make apprenticeship that inclusive of all different kinds of people beyond just doing the right thing. So, if you were actually selling apprenticeship and had to make them more concrete case, what would you tell employers?

**Michael Ward Jr.** – So, I'll start on my side and I handed up votes at ahead and refresh. So, number one definitely goes back to just overall the diversity numbers and knowing the fact that here in Austin, specifically, we don't have enough people training and developing that the tech space. So that's just number one. So we don't have enough individuals that are graduating from graduate from these areas through all the different institutions and universities that we have, okay, what are you going to do to really create a new pipeline of talent, right, that that's where you employer coming to really change and reshape the industry. So, you could have reliable talent reliable pipeline coming in on your end. So that's the first thing that I stay say just show them what is the overall challenge that is impacting not just them, but really impacting the state of Texas, and where they fit in long term.

**Michael Ward Jr.** – The second thing that I would say is goes back to showing how much more market share, they could generate by having diverse teams. So we've pulled data points from once again the Austin Workforce Report. There's also LinkedIn Job Readiness Report that they pushed out, I want to say quarterly as well. That really goes into what are some of the benefits around hiring diverse talent, especially given areas with inside the tech space. So it really depends on what which aspect of the company works with whether, you know, Oracle, IBM, Amazon. We have a lot of large tech companies here, they have different focuses so on software engineering some more on sales and some are more so around our around cyber security. So depending on which fits in for them, that's where we'll dive deeper into but overall is really about showing them the benefit and how it pertains to them on their side.

**Daniel Kuehn** – You're muted Girish.

**Girish Seshagiri** – Yep. Okay. Can you hear me now? Yeah, okay. Well, I think one of the things that we probably ought to stress when we talk about apprenticeships, is that we're talking about competencies and this is what they purchase actually are acquiring and so we're, we're starting to see a big sea change your way of thinking on the academic side. Many colleges and universities are really thinking about how to offer the degree programs and so on, mostly as a technical education program where the students are actually learning skills that are actually employable make them more employable. And so for us, by doing that with

employers and as well as by predominantly making the focus on the historically Black college and universities, we think that we can bring together the minority community give them the competencies. And again, this will be the competencies for the, the, the hardest to fill jobs and cybersecurity, and IT, that's what we're focusing on, we're asking the employers, what, what is the jobs, what are the jobs that you're finding the hardest to fill in? And what are the competencies required, and then we base the program based on that. And so, and here again not only focus on the competencies., we also make sure that is measurable and when competencies are attained that they actually, the apprentices are recognized for that and they get even a bigger pay for instance. So those are some studies that we could have, but ultimately we automate the kick a ball from a business perspective, versus will many business will do the right thing, but all businesses will do what is right for the top line and the bottom line. And so, we had to make sure that that it makes business sense to do apprenticeships, it makes business sense to do an apprenticeships with a diverse community of apprentices.

**Daniel Kuehn** – Great. We've also gotten a lot of questions about the nuts and bolts of apprenticeship. There are a lot of employers on the line and people that work closely with apprenticeship. So, we have a few of those. I want to start by clarifying with you, Girish. You mentioned competencies, so it has your program been a competency-based program where apprentices advanced by mastering competencies? Or is it a standard time based?

**Girish Seshagiri** – Yeah, it is a competency based one and let me just clarify. We're, we're designing it right now, so we'll be launching good then in probably the fall of 2021 for sure. Okay. So, so what we have is we have identified the competencies and this is again something that I think was unique in terms of how we approach that The National Initiative for Cybersecurity Education, the NICE, they have a workforce framework which actually codified all the different occupations that are in cyber security, for instance, and as well as the knowledge and skills, abilities, what, what you would call the competencies that are needed to be able to do the job. So we're now mapping the curriculum for one of the HBCUs as to what they're offering by way of actual courses in their computer science and cybersecurity degree programs and how does that map out to what the framework calls out for in terms of the competencies that should be there. And so, so this way. I think we have a common terminology that we could use to talk to between employers and the colleges and as well as the fact that we will have some credibility in terms of the people are be going through this academic program was also getting the technical education, that they will in fact we getting the competencies that are coming from a standard like the nice framework. I don't if that answers your question, Dan, but that's currently where we are in our program.

**Daniel Kuehn** – Yeah, that's great. And so, it's nice to hear that the competencies build that bridge between the employer and the college. The other advantage that you hear about competency-based programs is that they're more flexible than a traditional time-based program. And I'm curious if others on the panel think that the flexibility of a competency model works particularly well for tech apprenticeships or your thoughts on competency versus other models for apprenticeships.

**Nicole Brown** – I know for our program; we're using a hybrid approach. And since we are a cyber security base we are in line as Garish stated on the NICE framework. So, therefore, you have to hit certain topics in order to meet those competencies but also, since in IT, we're trying to build up those individuals for those intermediate and also have them be able to qualify for some higher level positions and cyber so therefore they need to have some time in the game. So that 2,000 our requirement that we have in place tis a year. One of our programs is for roughly approximately about 2,000 hours and the other advanced program for like security analysts and assessors they are required to participate in the program for 4,000 hours, but that's 4,000 hours of work with an employer. So, at the end of the program. You know, if you stay with

hopefully you get a chance to stay with the employer, but if you decide to move on that amount of time will allow you to qualify for some of the higher level position. So that's why we're using a hybrid approach, especially since we're not a university and we have to make sure that our apprentices actually have something of substance, because we're not a university. So that's why we're aligning our training with competencies of various like comp Tia, and those types of symposiums.

**Daniel Kuehn** – Great. And Heather, did you have any thoughts on competency models or some the flexibility of traditional time-based model?

**Heather Terenzio** – Yeah, we, we have a competency model as well. And the truth is, people will learn at different rates and people gain skills at different rates. And so, we wanted to allow for people who put in extra work to actually be able to get through their competencies faster than folks who are maybe not picking it up as quickly. So, I think it's important to have a competency based model. But then there is some time component, it actually recently changed just in the past six months or so. So, there is some time component to it as well. But we really do focus on the competencies to make sure that people have the skills they need before they're finished.

**Daniel Kuehn** – Great. Sierra there was a question for you about what IT programs or classes were available at your high school or surrounding high schools. And if I'm, if I heard you correctly, you started your apprenticeship after college as well, right, so, so I think maybe I'm curious about it programs and classes in college as well that you have the opportunity.

**Sierra Butcher** – So, IT programs in high school. The only computer class that I remember is keyboarding not trying to be funny, but we didn't have the resources like I spoke about earlier. Keyboarding was it. In college I studied biology so I really wasn't focused on computer classes, we did have one computer class like it's like a cork a set of core classes that you need in order for you to even get into your classes that you want for your degree so I think it was just one computer class that just shows you the basics of like Microsoft Office, the basics of Excel, how to do a PowerPoint just the basic knowledge. But then again, I was not even focused on computers. I was, I studied biology. And then when I got out of school, I didn't really know what I was going to do, the pandemic was going on. So, it's like, okay, what do I do, I'm already in STEM, even though I'm in the science sector of STEM. Um, and I just was just applying for jobs. I didn't have any guidance. So, I was applying for jobs, I was applying at hospitals, I was applying for anything that had to do with stem applied to be a math teacher, apply at hospitals, I applied for apprentice apprenticeship program. So, I just threw myself out there because I knew that I graduated, and I needed a job and I needed some money. Honestly, and that was it. So high School keyboard in college didn't really take any computer classes just one, just so I can get into my degree program. And then after graduation. That's not just threw myself out there and just start. So just don't applications because pandemic was going on and I needed a job and I needed some money and I wanted to say, “hey, Mom I got a job after I graduated.”

**Nicole Brown** – Hi, Sierra. This is Nicole. I have a question. How are you, adapting to the career change or the curriculum change as it relates from biology to cyber security? Are you experiencing any challenges as it relates to like the topics or the various components at work? What has been your transition like going to cyber from biology?

**Sierra Butcher** – Um, it was, it was a bumpy transition in a way because I was so focused on science, but I'm just the type of person I am. I have an open mind. I like to learn. I like to learn new things, you know, so I just chose just to throw myself into this and just to learn and see what else is out there, other than science. You know, so I'm just learning about all of the security breaches at these large companies and how much money

hackers are stealing every year. My friend actually then as I start seeing stuff going on in my personal life, then my friend told me that, hey, I went into my bank account and they took \$700 and I'm like, Girl, you got hacked, you know, so you know, so just like things going on around the world around you know people around me and just the type of person I am with just learning, you know, learning new things, reading, you know, reading articles and just seeing what's going on current events in cyber security right and it just came to me like I really feel like this is where I'm supposed to be, you know, there's not much representation here anyway this is where I'm supposed to be. And I feel like I can make a difference, some kind of way. Not sure how yet, but some kind of way in this industry as a young black woman from the inner city, you know, learning cyber security and I don't have any experience in cybersecurity, let alone computers at all. You know, so I just came into it with an open mind.

**Daniel Kuehn** – Right, so we have one-minute left. And I have a question that I think can be answered quickly that I'll end on. How do you sell this field to people who are totally capable but haven't been exposed the field and might have a fear of entering the field?

**Heather Terenzio** – I think-

**Girish Seshagiri** – Go ahead.

**Heather Terenzio** – Software is that it is collaborative, it is teamwork. You're not just sitting in a room programming by yourself that it's creative and there's a lot of people involved in the process. And so I think it's gotten bad PR over the years, but I think we need to start framing it for what it is that it's kind of fun and interesting and you're in teams and it's a collaborative and creative so it could appeal to more clear.

**Girish Seshagiri** – Yeah. This was getting one thing I'll quickly add is that we can we can do an aptitude test of people don't want to commit to this to see if they do have an aptitude for cybersecurity our software development IT jobs and that I think would be a way of making sure that people are getting into jobs that they have aptitudes and then we can be successful. And so that's one approach that we found worked well in making sure that people that go through the purchase programs are in fact successfully completing it.

**Daniel Kuehn** – Great, I want to thank everybody for joining us today. I thought this was a really wonderful conversation. And for all the great questions from the audience. Thank you very much.

**Michael Ward Jr.** – Thank you again, everyone.

**Girish Seshagiri** – Thank you.