

## **Transcript for Session 4: Certification and Apprenticeship: Target Corporation Leading the Way in Technician Workforce Development**



>> HAPPY THURSDAY. WE WANT TO WELCOME YOU BACK TO THE VIRTUAL SYMPOSIUM 2021. WELCOME BACK TO ANYBODY WHO WAS HERE YESTERDAY AND WELCOME TO ANY NEW PEOPLE JOINING US TODAY. MY NAME IS VALORIE PIPER, I AM THE PI AND DIRECTOR. DESPITE THE CHALLENGES OF COVID-19 OUR TEAM HAS MOVED ALONG AND DONE GREAT THINGS THIS YEAR. WE'VE MADE GREAT PROGRESS. THANKS FOR BEING ONE OF THE PEOPLE WHO REGISTERED. WE HAVE A GREAT PROGRAM LINED UP FOR YOU STARTING WITH TARGET CORPORATION. WE HAVE SEVERAL HOUSEKEEPING ITEMS WE WOULD LIKE TO GO OVER. PLEASE USE THE CHAT to interact and share resources. Select all panelists and attendees in the drop-down box as it defaults to panelists only and we want everyone to see your questions and comments. Make sure your chat is appropriate. You can chat on the close captioning or go to a link in the chat and open it in your laptop or phone if that is what you want to use. Please fill out the brief survey that will be sent to you today. This is important to us and very important to NSF. I would like to introduce you to Steve Harrington, our industry liaison for the National Center for supply chain automation.

Steve: thanks. I'm excited to be here with you today to share a story of a successful involving regional resource partnership catalyzed based on work and relationships developed by the National Center for supply chain automation. First I would like to thank our symposium sponsors AMATROL and MSSC. In the world of grant work funding is hard to come by. Your financial support of virtual symposium is greatly appreciated. I would like to provide some context to this particular session. 14 months ago Phil Jones from the Target Corporation reached out to the center looking for a workforce development solution to their shortage of skilled automation technicians in Southern California. Target needed to fill 11 open positions, upscale some of their existing staff members, and was in the process of building a new, next-generation, highly automated logistics facility with a need for 60 new skilled technicians to keep that facility operational. Phil was hoping to identify resources that might help Target with this challenge. After some brainstorming together, I introduced Phil to Charles Henkels, one of our presenters. Charles was able to get the ball rolling, often uphill. This presentation

will provide background on how a successful program was put together by leveraging regional workforce development resources, registered apprenticeship program, the skill boss skill assessment device, and the recently released certified technician supply chain automation certificate program, which is ISO accredited. It is the first of its kind of program which the National Center would like to see replicated in other parts of the country. We are hoping today's talk will provide a roadmap as a guide to the development of other similar programs nationally. With that said, I would like to turn things over to my colleague, friend, and project champion, Mr. Phil Jones, the director of supply chain engineering, Target Corporation.

Phil: good day, everybody. I am a director inside supply chain engineering inside of Target's supply chain and logistics operation. I have worked with Target 24 years. I am currently an industry co-chair and a member of the national visiting committee. What I would like to go ahead and do for the next hour time period would be the evolution of how we have partnered with a variety of different groups to look at developing supply chain technicians, not only for Target where we have a significant need, but inside the broader United States as a whole. And then to highlight specifically the partnership we've done with our training center inside Southern California, to go ahead and then share with everybody a variation of a possibility that you could consider as you are looking at ways to tackle your talent challenges. Let me go ahead and talk a little bit about my talent challenge here for -- to give context to my problem here. For the past decade Target has really struggled to go ahead and maintain desirable staffing a maintenance technicians and our buildings. We currently have about 650 technicians over 40 facilities across the country. In the last five years this has become particularly acute and a pain point for us as it is challenging for us to expand and go ahead and take care of the demand for operational support that we must provide. This is -- this has caused us to expand a tremendous amount of recruiting effort and partnership with our human resources department to try to gain appropriate staffing. From working with the National Center for supply chain automation I have discovered misery loves good companies. I am not the only one specifically struggling with this. As I have talked with many industry peers, this is commonplace across the board and represents a tremendous challenge across the country for us with regard to the ability to go ahead and support supply chain. This has been compounded with the evolution of advanced automation, including robotics. Not only do we now need to hire a larger number of technicians, but the

overall skill sets associated with advanced automation have really moved the skill bar higher, which means we now have to look at how to upskill our existing base of technicians and hire new technicians. To give you context, what you see is a map that shows the target supply chain of over 40 facilities overlaid in the United States. The blue boxes represent logistics centroids where there are larger concentrations of supply chain operations, specifically in you see not surprisingly a lot of our facilities are located inside of those. Of note, in the next several years Target intends to open 30 additional facilities across the country, especially in urban areas to support our ongoing growth. This increases our overall need and increases the challenge that we have overall. First off, let me talk about the evolution of technician development. I quickly realized it was not going to go ahead to follow a status quo where I was focused on traditional recruiting or attempting to engage in a talent war with a competitor in many markets where I just took care of myself. It became really obvious that we needed to focus specifically on what I call growing the size of the hole pie, -- whole pie, or increasing the number of supply chain technicians everywhere for us to meet our demands. The focus then grew to, who can we collaborate with and what role do we take to make that happen? Based on this, Target focused specifically on taking leadership roles specifically on how to go ahead and collaborate and create sustainable pipelines within our communities. That means significant collaboration with many partners, it meant partnership with companies that in the past we had looked at in an adversarial basis, and to begin now to look at as partners in a common challenge. This meant a tactic of long-term collaboration and engagement with key partners that could help us out at both corporate and local levels. That included industry partners, schools inside of our communities, and the National Center for supply chain automation. Let me talk a little bit about this evolution. What you see in blue represents our initial stab at things. This was focused on how to go ahead and meet many of the community college leaders specifically in our areas using connections with the National Center for supply chain automation. So that we could establish relationships. And along with that then encouraging industry collaboration in conjunction with educators to go ahead and demonstrate the need for broader supply chain inside of major urban markets. Traditionally, Target did not have a large enough demand that we could make a total difference, specifically with a community college, but when you partnered us with many other companies with supply chain facilities, you began to demonstrate a real need that was very desirable for community colleges to figure out how they could possibly fill. Now, a collaboration that occurred

between the National Center for supply chain automation, Amatrol as a training group and the manufacturing skills standard council to develop staff couple certain -- develop stackable certifications and training for the development of supply chain technicians offered a tremendous opportunity that we recognized could potentially be a game changer for us. We looked at this as a key opportunity, specifically, for us to demonstrate that leadership role by going ahead and volunteering resources to support the efforts to go ahead and further development and accelerate that effort. Therefore, we focused significantly then on bringing along our global supply chain leadership on the strategy that we had taking advantage of the certified technicians supply chain automation and the associated skill boss logistics device to demonstrate how we could go ahead and begin to self develop, and then do partnerships with different groups in order to develop significant numbers of technicians inside our communities. We then created a maintenance technician trainee role, a full-time role in our teams focused on learning and developing the basic skills using the skill boss and certified technician framework to fully develop themselves into our maintenance technician roles. We have created a training center in Southern California where we have a convergence of five different supply chain facilities in close proximity to each other to go ahead and create a purpose-built training facility where we can go ahead and put our device and run classes or cohorts of students to go ahead and learn the necessary skills. This began our journey into in-house training development, specifically as an option. In the past when I've spoken to groups with the National Center for supply chain automation, we always said we could not develop in-house talent. This now gives us the opportunity to actually develop training and people inside our organization, unlocking a new and significant group of people we could go ahead and give opportunities to significantly increase their overall well-being by going ahead and allowing them to upskill themselves and become technicians, and for us to fulfill a demand we had. We purchased four skill boss logistics and set up one as a training center. As we began running our first students through we realized that we had what I call a gold mine in regard to what we are doing and realized there is a demand for this elsewhere, and we began to purchase skill boss logistics and other markets. We will open a second training center in the Midwest and focus on being able to do robotics training. We have focused on doing things like remote learning and upscaling training to meet our needs specifically. This then opens an opportunity for us to then look at how can we do different types of partnerships with community colleges in order to go ahead and take advantage of apprenticeship programs, to go ahead and share

resources, to go ahead and make this available. We are very much interested in doing partnerships with communities to develop our options. Specifically, what I would like to highlight today and have others talk about following up is to go ahead and talk about the partnership in our training center inside of Southern California. Specifically key partnerships that have helped make that happen. I will have Charles Henkels will be talking specifically about launch apprenticeship and how we partner to go ahead and take advantage of some of the opportunities with Launch Apprenticeship. Paul Perkins will talk about the skill boss device and how that fits into this. And then Josh Gonzales who runs our training center will show videos and talk about how we have evolved and what we do. At this point it is my pleasure to go ahead and introduce Charles Henkels specifically, and to go ahead and have him talk about launch apprenticeship.

Charles: Thank you, Phil. It is great to be here, and such a great turnout. My name is Charles Henkels and I am the project director for the launch apprenticeship. What launch is is it is a collaboration between the community colleges in Riverside and San Bernardino County in Southern California. Basically what we do is we set up partnerships like the one we are talking about today will stop where Launch came from was basically around a conversation that was taking place. I very consistently would have interactions with industry partners that were industrial technologies and they are expressing the same issue. We are having trouble finding the talent that we need. Basically saying they couldn't find the people they need and even when people were coming to them there wasn't always a feeling that they were ready for the industry they were entering. What was a dissonance was at the same time we are having this conversation we were seeing our students do things like this. This is a picture of a group of high school students winning national skills competitions in automated manufacturing. What we were sensing was it wasn't so much an issue of if we were the right curriculum, but it seemed like there was a gap and disconnect between our regional's messes and employers and industry partners and our students. Basically what we proposed was this idea of using registered apprenticeship as a way to address that skills gap in our region. The idea being that instead of putting students through a conventional pathway where we offer them curriculum for a set time, like a s -- like a certificate or degree, and then send them out into the world. What we did was let see if we can begin embedding students in the workforce as part of their education. This required a really deep partnership with industry. We had to change the way that we discussed program development and

workforce education. The numeral that we were asking employers to play -- the new role that we were asking for lawyers to play was not only to be consumers of the talent, but to be creators of the talent with us. I have to acknowledge in California we have a well-supported to apprenticeship initiative. Our goal is to reach 500 apprenticeships. A lot of the funding that we pursued was through state funding through the California Chancellor's office strong workforce program in California apprenticeship initiative. We used it to help get programs like these underway. The strategy behind all that funding is this regional approach. The big idea is we would create these clusters of businesses and schools that could serve general sectors and valid programs like these -- and develop programs like these. What that looks like from a strategic implementation standpoint is what we do is develop a apprenticeship intermediary structure where companies participate through apprenticeship committees. Just as Phil mentioned, the ideas we don't build programs necessarily deserve one business only, but we asked the businesses in areas to collaborate. Think of this as a joint effort of growing the pie. We focused on multi employer structures that aggregate needs and professional pathways. We also try to leverage multiple organizations and workforce systems will stop we don't really think of this as a one institution one school type of strategy was that we have many colleges that participate. We have multiple high school districts that do workforce development boards. The goal is to streamline those resources to serve the users better. Right now we do a blended approach where some of our education is delivered through our existing CTE infrastructure in the colleges, and we do contract not for credit services the pilot curriculum and test it out. The big idea going back to, again, is what we are trying to build with Launch is an apprenticeship system people can plug into. We don't want it to be complicated. We don't want to change what we are doing based on what grant we have or what the opportunity is. We are trying to build the system that we want to be around for 50 years is the big idea. I get a lot of questions about, what is a regional intermediary? I will address that real quick. An apprenticeship, to do a registered apprenticeship program you need a program sponsor. This is often very challenging for individual businesses to play that role, or even individual schools. We established a regional intermediary program sponsor that was registered with the division of apprenticeship standards. The big idea being that employers just had to plug in as opposed to creating homemade programs on their own. They could plug into the regional system and benefit from being part of a whole. Same thing with institutions. They could plug into the sectors they were focused on creating apprenticeships with will stop in most

cases the schools provided the administrative services, registering the apprentices, operating that program, working with the Department of Labor, the division of apprenticeship standards. The industry partner, the big ask that we make of them is to provide that upskill opportunity, work-based learning opportunity. We leveraged the existing CTE infrastructure in place in colleges. In this particular case I want to outline what that means in an applied view. To do a program like this it involved multiple partners. Target, they will outline more of what they are doing. In essence they are providing a paid workplace-based learning opportunity for employees. That is something we should be encouraging wherever we can. Launch, we provide that intermediary structure. Then, one of the things we did that was unique, and this was based off of really I would say the industry's indication that they would get behind this MSSC Amatrol skills boss approach to training technicians. We trusted their leadership and purchased equipment that we could have the same training at the college is taking place at the target facilities as well. Then we have partnering institution Norco college that is working now on how they can accredit this program. Where we are going, where we are looking ahead, we are excited about this program as a pilot. We also look at it as how do we move this forward, expand it? Some things we are doing is looking at the creation of pre-apprenticeship pathways for individuals who don't work for Target, are in our high schools, jobseekers, we want to provide a pre-apprentice ship program based around the MSSC certificates that will help someone enter that industry and programs like Target's. The other thing we are doing is we are having our college faculty really take a close look at the curriculum that is delivered through this program. To look at the work of the instructors and to provide a strong feedback loop between the system engineers in the industry and college faculty training technicians in this area. Lastly, big picture things we are excited about is we are looking at this is also a possibility for a pilot in competency-based education and indirect assessment. This is something that will allow us to be student-centered while industry-led. I want to hand it off to the president of Amatrol, who will talk about skills boss. It is Paul Perkins. I will turn off my camera and you can take it away.

Paul: Supporting Target's efforts was developed called certified technician supply chain automation. The development has been an expensive process spanning over five years. It has been a team effort. Leadership has come from five organizations. Excuse me. Including the National Center which created the vision and engaged industry experts with the help of industry associations, MH I, and

MHEDA, MSSC which created the certifications and Amatrol which created the learning materials. Ultimately a group was assembled consisting of the Who's Who in the supply chain industry with iconic names like some of those that you see here. These companies provided expert advisors to define the various parts of the program and spent countless hours reviewing and testing to validate the outcomes. The result of the effort is a total system consisting of occupational standards, certification assessments, online course materials, and hands-on training device. This slide shows the structure of MSSC certifications. It is comprised of three certifications. The first is maintenance which certifies skills operation, the next one is equipment repair, which certifies skills in insulation -- installation of mechanical devices. Finally, network repair which certifies skills and troubleshooting of controllers, networks, and the entire system. These three certifications have been aligned with common technician classifications companies use today. Individuals we work with with just one of the certifications, the first one, the EM, then they gain additional certifications up the career ladder. Each certification consists of an online test and hands-on evaluation. Amatrol developed courses in line with each of the three certifications. Once students have learned the concepts through the online courses and simulators, they are ready to practice their skills with the hands-on materials. But, the e-learning materials that come with the program are designed to actually prepare students through hands-on work with virtual simulators. You can see an example of one of the simulators in the upper right-hand corner of the screen, which is a pneumatic simulator. The courses are interactive, multimedia-based with graphics, 3D interactions, and each course is about 200 hours, which covers the time to cover the e-learning and hands-on. Once the students complete that work, they then go to the hands-on part of the program working with Skills Boss logistics. The device that you see in the lower left-hand corner of the screen is a working tabletop - sized rotation system. Even though it is compact they use the same techniques in large-scale certification systems like on the right side of the slide. On Skill Boss, packages are inducted, scanned, routed, and sorted into three routes or if there is a bad scan to a station. We also made an extra effort to include a wide range of technology so that the skills learned and assessed apply to other types of supply chain automation. In addition to being used as a training device, Skill Boss is used for assessing the hands-on skills of the CT-SCA certification. Everyone certified in CT-SCA has to test out on this device to ensure that the valuation is consistent. There are approximately 100 skills that can be performed on Skill Boss aligned across the three certifications of CT-SCA. To perform the skills the learners work



with three major elements. One is a human-machine interface which runs a warehouse control software, which you can see in the lower left-hand corner of the screen. The control unit with ethernet network and variable frequency drive. The workstation itself includes multiple conveyors, sensors, actuators, and scanners. These work together to create a real sortation system as you would find in a distribution center. In addition to these elements, which enables Skill Boss to operate, Skill Boss includes another element to make it not operate. This is the most important feature of the system because it enables individuals to learn and assess troubleshooting skills. To accomplish this objective we used a computer-based insertion system called faultpro. It is an electronics circuit board that inserts faults into the system and tracks student troubleshooting activities. There are 50 real-world faults that can be put into the system so students have a chance to have realistic troubleshooting training, which is the most important skill a technician must have. Now that I have described the overall operation of the system, let's watch a short video so that you can see Skill Boss in action. The Skill Boss workstation is designed to be accessed from all four sides so that multiple students can work at the same time. We have designed it for safety with features like guards with safety switches over critical moving components will stop to start the process the packages are placed on the induction roller conveyor. The packages are fed with gap spacing to the induction belt purveyor to be scanned by a barcode reader. The first receives a good scanned so the verticals order passes it to the distribution conveyor on the backside. This next package got a bad scan so the verticals order reroutes it to the top level. The package stops at a rework station where the person can fix the problem, which in this case is to flip the package over to show the barcode, then it is released to be scanned again. The final stage is to sort the packages into their destinations . This occurs on the distribution conveyor using three electro pneumatic converters which sort packages into three discharge shoots. -- discharge chutes. To monitor and control the process monitors use control how software that runs on a touchscreen PC will stop the software features graphical screens to operate the system and has many other functions which are accessed from a main menu. Examples are system management, where the system is configured, and there are many ordered handling functions. There are also alarmed screens and even a 3D monitoring and operation screen. Finally, students learn troubleshooting using the faultPro software accessed from a PC. Skill Boss is providing operation maintenance and troubleshooting of supply chain automation. As you might expect, teachers have much to learn to teach and certify individuals. To make sure that it is a success we

have developed a master teacher training course. In the course teachers will learn to implement the certification, use the online training courses, and become early familiar with Skill Boss logistics. The train is in Amatrol Indiana with a standard course schedule. We have two in May and August and more dates as programs come on board. We can do training on-site as well. That is what I have to share about CT-SCA and Skill Boss. If you have questions don't hesitate to reach out to me or Neil Reddy at these email addresses. I will turn it over to Josh.

Josh: my name is Joshua Gonzales and I am the Senior operations manager overseeing our startup in Southern California. I will be sharing with you guys some information we have been going through in the last six months of the program. Really starting with all of the partnerships we've talked about. We started this journey in November of 2020 to train our current population of technicians but look to grow our future of maintenance technician trainees. We have really been able to execute training programs that include both interactive online-based modules led by a Target certified instructor. We have a phased approach in applying the practical application to the skill Boss logistics and later into the field. What has been the goal? The goal is to educate and develop and certify our technicians with standard programs across the network, but looking to drive efficiency and speed of learning. We have been able to turn our MTT's into MT's in seven months. Also, how e-learning is applicable within the modules to provide a lot of learnings within that as well. You will hear from what we call coaches, these are our trainers from the field. You will get a sneak peek at how Target is utilizing the Southern California facility to extend outside of its four walls and a hybrid program getting virtual classes from different distribution centers in the network. As you can imagine, preparing a program of this scale comes with many administrative tasks. One of them was location selection. You heard Phil talking about having five distribution centers within 15 miles. We found our Fontana location in California would be able to accommodate the 1100 square feet we needed of space for 10 students and the skill boss logistics to be housed out of. Having a dedicated instructor was a learning for us in this course. We have to have a coordinator and be able to support the technical portion of the training with an instructor. We will hear more from Javier, who was previously an engineer at one of our distribution centers at Target. The recruiting, hiring, and onboarding with HR is a six to eight week process. Grading the job posting, understanding what needs to be in the job posting, screening the candidates, determining what the candidates need looking at their resumes, developing

expectations, and this was a big one in partnership with many leaders and technical experts we developed an internal skills assessment that gauges the level of problem-solving and deductive reasoning from the candidates. They are not expected to come into the program knowing how to do things, but we want them to be successful in the program. Coordinating with distribution site leaders and schedules for MTT's. We are at 13 and we have had to apply different schedules to ensure that we are not overwhelming the site coaches with too many to train. Also looking to assign a dedicated coach. This was a big learning as we initially got started. A coach is someone who needs to be able to follow the curriculum, not jump ahead and go rogue in the training, and be able to teach in a safe manner the practical application of what they are currently learning in the program. Lastly, you will hear actual experiences and meet the MTT's from the field. This is a quick snapshot of our regional distribution center in Fontana. Again, this was the location selected for our training center . It will support future market expansion opportunities. It gave us the 1100 square-foot space we needed and serves as a continuous learning location for existing maintenance technicians and leaders. Here is the two adjacent rooms while they were in construction that ultimately became our training center. Overall, this process took, from design to finish, about three months. At the beginning of April we were able to reap the benefits. You can see how beautiful the training center has come out too. This house is 10 students Max. -- houses 10 students Max. They have laptops, screens for them to look at diagrams and schematics on monitors one of the features we've recently added is PTZ cameras throughout the training center. This has allowed MTT's to attend virtual class time in Southern California, which is fantastic because it allows for the real-time interaction with our instructor. So far, for the first we have been able to fill the MTT positions internally that attend classes over a four-week class schedule a week. These MTT's are also serving our local distribution centers. Not all of them are housed from one distribution center. We are also looking at applying future cohorts of trainings to upskill our current maintenance technician to population and provide that network curriculum to be able to upskill them to a maintenance technician three. You will hear more about them in a bit. So, this is Javier Avila. I will pass it over to him, but he is an engineer with Target. He has six years of experience. He went through the certification process with MS EC and Amatrol and is supporting our cohorts with plans of supporting up to 2023. I will turn it over to Javier so you can learn about how he uses the curriculum and how some of the MSSC is provided from a instructor perspective.

Hot beer: I am the instructor for the program here in Fontana, California. I went into this program because I love teaching. So I saw the opportunity they wanted to open in Southern California that a number distribution centers would have. We have the unique opportunity to train the future maintenance technicians of this program. We are using the tools created by Amatrol and are part of the training program from MSSC, manufacturing skills center. I have here one of the tools that the latest technicians in training have. I just have a snapshot of the actual simulator which this is for electrical and specifically a motor control circuit. They get to know every component, how it works, and how to troubleshoot the whole circuit. You can see they have an available meter to see the voltage, resistance, support, and they can take measurements on the circuit. They actually have the individual components, they wire them together following the schematic provided, and then they troubleshoot it. First they verify that the whole circuit works, then go into settings, and then faults are generated randomly. They don't know exactly what order it will fail. That is what they have to figure out using the tools provided. You can see how fast. This specific MTT was able to troubleshoot seven faults in a row in about 13 minutes. That is less than two minutes per fault. So they get very proficient at picking reads on the surrogate, figuring out where the problem is. And then verifying the component off circuit and be able to revisit Ray the point. They do this before they get to the real equipment where they are actually going to be working with light voltage. We have the equipment here. This is the skill boss logistics from Amatrol. We have all of the basic components of a sorter or any other machine. This is a mini sorter. The motors actually move the conveyors in a sortation system.

Josh: It is interactive and allows the instructor to see the progress made by the MTT's. In this case how quickly they are able to diagnose these faults will stop and quickly be able to take these module learnings and apply them on the skill boss logistics in a safe, electrical environment. So, I really enjoy this picture. This was taken in November of 2020. Our first cohort. You can see that it was not in our beautiful training center yet. It was in one of our video conference rooms at Target. At this point whatever you see is what we have. It is part of the program. Any additional materials, peripherals, skills, laptops, all had to be -- we had to learn that we needed that along the way will that we did end up taking a pause for the month of December due to COVID and resumed classes in January. Our Target apprentices go through an initial screening of their resumes, interviews,

and then a technical assessment that focuses on their ability to problem solve. Again, there needs to be more of a passion to learn in this industry, and that is the candidates we've selected. A lot of them have previous Junior college experience or have automation or electrical industrial degrees, which is fantastic. It serves as a great baseline for this program. The MTT's will go through a 34-week period, a little over 130 modules from the M SSC curriculum. The additional two days a week they are on their home site with their coaches. This is pictures taken the first week of April as we onboard it our second cohort. They got off to the right start from some of the learnings we had in November. We expect to certify MTT's on equipment repair and equipment maintenance, our first two certifications. In order for our technicians to progress into an actual MT role and go into a Target-based technician role. This will take about seven months to complete, which was a great learning for us and is fantastic to get technicians into the field that quickly. We have expected Target growth to have about 50 MTT certified and into the field by the middle of 2023, as well as 50 technicians certified in our more advanced repair curriculum in that time as well. I will play this video and kind of talk over it. I really enjoy it because it is a really good interaction in the sense of Paul touched on it, having multiple MTT's being able to see what they are going to be working on. You can see Javier is providing that coaching experience throughout this. That has been the middle step as we look at module-based curriculum. The next step is applying it on the skill boss logistics. This gears up our MTT's to take their learnings into the field on our material handling the equipment. This next slide will showcase a little bit about one of our experienced maintenance technicians from Fontana California and has trained several new hires, external and supporting as a coach for this MTT apprenticeship program. I will pass it over to Javier to provide context about himself and what he thinks about the program.

Javier: I have been with target going on 12 years. I have been a mechanic for 60 years, transitioned from mechanic one mechanic two. What I did before was I was in inbound for five years, boxes like everybody else. What I do as a coach is they come from the classroom with some type of idea and then I facilitate that idea and show them in real time demonstrations . The benefits of the program that I see, from seeing external candidates to new program candidates is they come out of this program with a lot of ideas . It is really easy for me to show them what they're working on.

Josh: I think what is great about what Javier highlights is the curriculum provides him really strong context to be able to train versus trying to decide from the MTT what he is going to show them next. He can have a structured approach of what he will show them in the field will stop for our first cohort of MTT's midway through our program, we currently have four are in our first cohort that have completed their first certification with a passing grade of 90% or better. What we did directly after the certification test, equipment maintenance, we gave all four of our MTT's a maintenance technician one assessment, which is what we would normally give our MT assessments if they are external candidates. We found three out of the four MTT's would actually be job offered MT one positions at this current country and they are performance into the program, which is a fantastic data point as we continue to learn. So, Jade is one of our trailblazers. He is one of the four that joined from the first cohort. He previously attended a junior college for two years where he received his industrial electrical degree. He has a passion for continued learning. When this program came up Jade wanted to put his name in the hat and was selected. Jade will walk us through what a day in the life of an MTT looks like as they spend classroom time going through modular-based learnings.

Jade: Hello, my name is Jade Grey. I've been with target for a couple of years. I previously had some experience at a junior college nearby with industrial electrical technology. This program opened up and I thought it was a good opportunity. This program has a lot of computer-based training that helps us work on a surface level, how they work together, allowing us to troubleshoot here safely before we go out to the floor and do it more hands-on. Here, I can show you an example of a circuit. This is a sequence control circuit. I am trying to troubleshoot it. I have to try to figure out what the fault is. We can look at it, we can notice that the motor doesn't run, but this light comes on that is connected to this. I can use this multimeter that is on the simulator to check voltage and whatever else we need. We know there is voltage present but the motor is not running. We will look at the motor and we can see it is not getting any voltage. Before the motor we have the motor starter. We will see if the motor starter is getting voltage. We can see the motor starter has -- coming into it, so we have to find out why the motor starter isn't sending voltage to the mortar. -- to the motor. We can check our contacts, activate it and make sure it is working properly. We can check all three of them. On this one it stays on 20 volts. L2 is where our problem is. Just stuff like that is a practical example of troubleshooting.

What the component is, so that later in the field when you have the same thing you know that this is the part that is wrong that you have to replace.

Josh: Jade was quoted as saying he has been able to learn more and retain more information in the last four months than at any point in his previous schooling. This was not stated in a negative manner towards any system, because without the fundamentals in his electrical degree Jade would not be as advanced as he currently is right now. However, it sheds light on the strong interactive and how the practical applications are being impactful. What are the advantages of this curriculum? When Jade completes the classroom training he will have the master certification once completing all three certifications. Getting the first two will allow Jade to apply for a MT 1 or 2 position while still completing the last certification. Jade is participating in a paid apprenticeship program and is becoming familiar with Target equipment. Kind of in closing, what were some of the critical learnings from our perspective at Target? The MTT recruiting and onboarding is key. Having that structure, but also understanding it takes time to recruit and onboard, six to eight weeks on average. Dedicated site coaches. I cannot emphasize this. Having the right coach with the right attitude and willing to stick to their curriculum is key -- is key to the practical learning for the MTT's. The network strategy for MTT's is big. Our virtual classes started three weeks ago, but we are seeing great gains. Continuing with making sure we are able to extend this learning outside of our four walls in Southern California. Lastly, insuring everything we do is founded on the practical training foundation. This is to this training program and if you speak to any of the MTT's, they will tell you that is how they were able to best learn, once they started applying this in the field. Some of the program wins is setting up the training center with cameras. This has been an exciting new learning and we are excited to expand in this area and learn from it. The integration and continuous technicians to further the technical developments, we talk a lot about how maintenance technician trainees are being introduced into the field through this program, but leveraging this program to upskill our current technician population and get it into a control-based data network through the network repair curriculum is something we are excited about. Lastly, the timing of it. New maintenance technicians ready for the field within seven months. Really having that foundational learning to be able to take into the field. Thank you all for your time. Hopefully this was excellent. It was exciting to share.

Steve: Thanks so much, Josh. I would like to anchor speakers for providing an excellent overview. Please remember this was done over the last year with COVID-19 restrictions in place which presented numerous delays and challenges. At the onset the intent was to have a dedicated instructor from a local college to handle the classroom elements. This was not possible with COVID-19 and related restrictions. Things are moving forward in this direction to have educators from the school involved with the program. In true partnership form each party has contributed substantial financial and human capital into the development of this program. This is an essential element in any partnership. This pilot program has been successful incubated in Target . It is in support of the long-term vision to develop regional training sites centered on this program with broader community involvement and a multitude of companies participating, basically taking this incubated project, and rolling it out where a lot of companies are involved and research partners are involved, and cohort recruitment is done from resource partners. A great -- great starting wages, a growing occupational demand with a defined career pathway. It sounds like we are headed in the right direction. Let's move forward with the Q&A. I received one question at the front in, which is this question is probably directed best to Phil Jones. What is the general job description and required skill set for these techs, and what is the pay range for these positions at Target were industrywide?

Phil: Yeah. so in Target specifically we have multiple levels of maintenance technician. What happens is there is a maintenance technician training, which is a full-time student we have hired at target. Their focus is on training specifically to go ahead and gain the skills to become a maintenance technician. There are three levels fundamentally of maintenance skills. A maintenance technician 1 is a starting maintenance technician principally focused on doing preventive -- There is less troubleshooting focus, it is focused on mechanical and basic electrical skills, oriented necessary to go ahead and do regularly scheduled maintenance on different pieces of equipment. Maintenance technician level two does preventive maintenance but with more skills. They handle troubleshooting and repairs of equipment that have broken down and are expected to be able to maintain the full spectrum of our different pieces of equipment that involves a more advanced electronics background as well as advanced mechanical skill sets. Maintenance technician three in our framework does advanced control systems, troubleshooting , and is a trainer for technician trainees. Those are the skill sets they focus on, they need to be able to know, PLC troubleshooting, and be able to



program advanced devices like servo drives, variable frequency drives, troubleshoot networks, and so forth. If you were to talk a general range, I cannot tell you exact specifics but I can tell you the industry as a whole, it is not atypical for maintenance technicians to range everywhere from the low \$20 per hour into the mid range \$30 per hour in some of your advanced technicians can be paid mid 30's to low 40's per hour. This varies tremendously from region to region based on what the job market looks like. That does not tell you target specific but tells you what the industry generally is.

Steve: it sounds like the wage range is somewhere at the front end around \$50,000 a year, upwards toward more skilled tax making upwards of \$90,000 a year. Thank you for providing that guidance without revealing target specific proprietary data. We had questions come in around the high school arena and I'm going to feed this to Paul. A logistics device is an amazing invention so first of all, congratulations on that, it is the next generation of trainer that can do teach and assess 100 different scales. Pals this appropriate for use in high schools or is it too advanced for students?

Paul: thank you for the compliment. It has been a team effort, we have had so many great minds from the many industry partners and target is one of the most significant and certainly the folks you have engaged and I think that has resulted in a superior training device, so to answer your question about high school students, absolutely, skill boss is a fit for it. We have several high schools using it now. The certification system that MSS he created is a staircase system so the first certification equipment maintenance is doable by a high school student, probably a junior or senior, and from the standpoint of the equipment complexity, one of the things we gave a great deal of thought to was the safety and we do that with everything we build, so the system is very safe and I think any highschooler using it can feel comfortable that their students are going to be in a good environment and it really comes down to time, how much time do they have to spend on it? Each of the programs is about 200 hours and it might take longer for a high school student. That is something we are testing right now. It certainly is within reasonable expectations that a high school student could come out with the first certification, maybe the second one. But also having worked on elements of all three of those certifications and certainly this is a program that they can continue on into a dual credit program. Thank you.

Steve: thank you so much. Charles, turned her presentation, he touched a little on some of your work with the partners and potentially on some of the work that is underway to take this model program to the next level. Can you shed more light on that?

Charles: I'm going to go back to that story that Josh told a little about that technician that said how much he had learned in the course of three months. I think it is easy to go past that statement that he felt like he had learned more in that three month period of this contextualized training than he had learned in multiple years of education alone. It was not an indictment of the education but it was promoting how effective this model is of learning, being embedded into work like that. A couple things that we are looking forward to doing. One is setting up pathways -- this is relevant to that question about the high school students -- setting kids up, setting jobseekers up so that they know what skills are in demand, what skills are important, what skills are going to help them get a job and be relevant to the companies in the area. We are excited to begin expanding that, creating more opportunities for people that are not already in this industry to get involved in that training, then our work with college faculty is to look at -- I will say this. This is a challenging program for a college to take on. I admire the courage of the colleges that do because what it requires you to do is to look at education through a competency -based lens instead of only a last lab hours lens. -- class lab hours lens. If we learn how to embrace this, we are going to provide opportunities for students to engage in programs like this. If we don't do that, I think we are going to miss our window of opportunity to really make a program like this a normal thing , not the exception, but the rule.

Steve: thank you. Appreciate that. A comment, the best way to get your question answered is to email Paul Perkins. Josh, we had a question come in -- you talked about the virtual classroom set up and what win that is for the Target Corporation. Can you shed more light on what you are hoping to accomplish with that or what the goals are or how broadly you are rolling out or any more context on that virtual classroom?

Josh: I think the first step is testing this with our first pilot building. We have only been three weeks into this but we have extended this opportunity out to the network. This year, target was provided these positions, these MTT positions from a labor budgetary standpoint, to be able to staff. With that comes questions from

each of the sites, how do I staff these positions and what do I do with them? We are trying to provide that avenue to take advantage of the Southern California training center to plug in virtually and what this does is it ensures that as the MTTs at other sites don't necessarily go independently into the program but they go in with a group of MTTs or peers that are experiencing it themselves, bringing up those questions, but most importantly, having the instructor available real-time to ask those questions. There are demonstrations that the instructor does. There are different types of skills that he will showcase on the Skill Boss logistics. They can visually start seeing -- we have seen some of that unfold. More time will tell how that turns out but we are hoping this reaches out because this is something that MTTs are available at all our distribution centers.

Phil: if I could follow-up for a moment, it is not economically feasible for us to create a full-fledged trading center at every one of our DCs. We did this as our first one in Southern California because the number of distribution centers -- we are looking at a framework where some of them will be full-fledged trading centers across the country, but in most cases, we are looking at what creative partnerships can we look to do? This is where I'm interested in talking with community colleges in the area to see if it makes sense for us to purchase a unit, does it make sense for a community college to purchase a unit, how can we take advantage of resources like the remote learning piece where we take advantage of zoom, which we have learned how to do as a subset of Covid, to go ahead and be able to give somebody sort of that classroom-type environment to supplement the self learning or self-paced learning that they are able to do with the certified technicians. I cannot say enough about what Amtrak has done from a training perspective. This is the bees knees in terms of the best stuff we have ever seen in terms of technical training content, packaged in a usable fashion, and complemented by an incredible lab device that makes it so easy for us to both train as well as to go ahead and certify.

Steve: excellent. Thank you so much. That is a great way to wrap up today's session. I want to thank all of the panelists for the information they shared about this exciting program and for the attendees, any chat questions we did not get to or any follow-up that folks have requested, the National Center will be reviewing the chat after the session and we will be reaching back out to you relatively soon. With that said, I would like to turn things over to our moderator , -- moderator. Take it away.

>> thank you. It is great to be back with you again today. We had a great day yesterday, it was a lot of captivating presentations and it looks like today is going to be just as excellent. Before we jump into our next sessions, we are going to take a short break. When we come back 20 after the hour, we will hear from one of our sponsors followed by two more terrific sessions. 10 minutes, everybody, then come back, we have great things coming. Thank you. 🎵