

[music intro, then fades to background]

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Mike: From the Center for Occupational Research and Development, welcome to Preparing Technicians for the Future of Work: The Podcast. I'm your podcast host, Mike Lesiecki. This is our first episode in our series. It's gonna be a little bit longer today. That will allow me to tell you a bit more about our project. In each podcast we will reach out to people who are actually on the frontline of the future of work and hear what they have to say. This will include interviews with industry leaders, working technicians, and forward thinkers in the field. Often we're going to focus on a technology--a moving, fast-emerging technology that's impacting the skilled technical workforce. That's going to make it possible for you to be better informed, and in every episode we will suggest an action that you can take. We want to inspire you to take that action. This podcast is brought to you by the Center for Occupational Research and Development, and that's known as CORD, with financial support by a grant from the National Science Foundation's Advanced Technological Education program. Opinions expressed in this podcast do not necessarily represent those of the National Science Foundation. You can find out more about this project and our approach at "Preparing Technicians"... all one word... PreparingTechnicians.org. Today in our introductory episode we want to set the stage for this podcast series by looking at the challenges. That's our subtitle today, "The Challenges."

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Mike: You know, all of us know that employers and educators need each other. Particularly as most face challenges in the preparation of the future skilled technical workforce. Technology advances are changing industries at an unprecedented pace and demanding an expanding array of knowledge, skills, and services to optimize productivity and to increase expectations for quality in the products they produce and the services they provide. Such changes promise benefits to the nation by creating new enterprises, new occupations, and new opportunities for innovation, and global leadership, both drastically altering the workplace

as we know it. As technology evolves so tasks and occupations transform. I think all of us know that demand for some positions involving tasks that can be automated, those are going to decline and in some cases disappear, while entirely new occupations will emerge. Well, what do I mean when I use that term "the skilled technical workforce?" Well, traditionally it means positions that require some college, some education beyond high school. But in some cases it means a two-year degree from a community college, or a four-year degree from a university, or a certification endorsed by industry. And in some cases, it doesn't necessarily mean school. It means on-the-job training to move to that next skill level. It means using online resources, online short courses to learn more about your field. Maybe you're a programmer and you're learning about ladder logic, or programmable logic controllers, or the next coding language. Many of us in the workplace use these online tools to level-up our skills. Well wait a minute. When we say technology, what technologies are we talking about? Well, let me give you an idea we mean advanced manufacturing. We mean engineering technology. Biotechnology. We mean information and security technologies, and that includes cybersecurity. We mean agricultural and environmental technologies. Every one of these technologies focuses on the fields relating to that skilled technical workforce. In this podcast we want to go where the people, the machines, the digital systems, and the cobots are. We want to see and hear for ourselves that future as it's emerging. You, our listener, we want to not only inform you, but also in each episode we want to prompt you. We want to drive you to take action, and take a step toward that future, whether it's preparing yourself or others for that future. Let's begin today with what our project calls the Discover phase. For this introductory podcast we've created three hypothetical scenarios. But I believe every one of us will relate to them. We've created a composite of a working technician, a line manager at a tech company, and a professor at a community college. Let's give them a call and see what they have to say.

[phone ringing]

Jake: Hey, Jake here.

Mike: Hey Jake. It's Mike, Future of Work Podcast.

Jake: Hey Mike, what's up?

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Mike: Jake, Hi, I know you're a skilled technician. Where do you work and what do you do there?

Jake: Well, I work for a company that makes machines. And man they are very complex machines. You know the ones that are used to make semiconductor chips.

Mike: Oh yeah.

Jake: Yeah, those are the chips used in electronic processors, and memories, and sensors, and that sort of thing. Our level of precision, quality tolerances, are getting tight, and getting tighter.

Mike: You went to a community college didn't you, Jake?

Jake: Yeah, I graduated from a manufacturing program there, you know, about five years ago.

Mike: Yeah, so how's it going at work?

Jake: You know, it's okay. I'm good. I can keep up. But my supervisor is always bugging me about beefing up my skills. You know, for example, there's a big push on for protecting our data and security. And I get that.

Mike: So, what are your biggest challenges?

Jake: Well, here's what I see. We had a new person start just the other day, a woman just out of technical school. She doesn't have the experience I have, but darn! Her knowledge is more up-to-date, more current, if you know what I mean.

Mike: Yeah, I know what you mean. Some of those "fresh outs"-- they've been exposed to these latest technologies.

Jake: Yeah, I can teach her about how things work around here, but she can teach me about some of these new things. And that's what I see my future: a struggle to keep up with technology and a need to work more closely with people so we can combine our knowledge and skills and ultimately get the job done.

Mike: Yeah I see that.

Jake: So Mike, how do I keep up?

[phone ringing]

Rita: Hi, this is Rita.

Mike: Yeah, Rita. Hi! It's Mike from the Future of Work Podcast.

Rita: Oh, hey Mike! I've really been looking forward to talking with you today. I have to tell you up front. It's just been an insanely busy day, so I just have like a minute or two.

Mike: Sure Rita. Thanks. I get that. I just got a couple of questions. I know your company utilizes robots and highly automated systems. What actually does the company do, and what's your role there?

Rita: We make sophisticated refrigeration systems, and I'm a line manager here. I've been here about a decade, and in the industry about 15 or 16 years. And my job is to manage both the robots and the technicians, and I'll give you one guess who's easier to manage versus the other. [laughing]

Mike: I think I might know in this case, Rita. Alright, let's think about those technicians for a minute though. When you get to the hiring side, what are you facing?

Rita: Oh, it's been a nightmare lately, honestly. Sometimes I have to interview 10 people for every open job opportunity that I have, just to find one person that has the skillset on both the electronic and the mechanical sides.

Mike: You mean you track that ratio: number of interviews per hire?

Rita: Oh, absolutely. That's really important to my bosses. It's a key performance metric--interviews per hire--and lately it's been dismal.

Mike: Hmm. And when you think about this workforce a little bit more, think about the future, what do you see coming? What are the challenges coming?

Rita: Well, you know, we've done a great job in bringing in all this automation. But now we really need people who can work with their hands, and get into those machines and process control systems, and troubleshoot when things go wrong. Because things WILL go wrong. And I can't afford to have the line go down. It costs us big time. So, please! Everyone send me your problem solvers!

Mike: Okay, I got that. We will. Now let me ask you about this. Let's go back to those interviews just a little bit more. What happens in some of those interviews?

Rita: It's interesting because I'm not sure if the people I'm interviewing actually have the skills, but are just struggling to communicate those skills to me. So, I think it goes back to our education systems and having our

educators really prepare people entering the workforce to know how to present their skills, human to human in a room. You know, even when they're technical skills, you have to be able to work with people, and really get them across. So I need people who have the skillsets and they're capable of telling me that.

Mike: You know, Rita, that's what we're hoping to work on here as part of our project going forward. Maybe on the education side, we can not only strengthen those technical skills, but the student's ability to convey them to you. I hope that will happen. One last question for you Rita. What's your ideal situation in that workforce of the future?

Rita: Well, I think, Mike, it comes down to three things. One, please give me skillsets that are on both the electronic and mechanical sides. Number one. Number two. Problem solvers. If you can solve my most critical problems, you'll have a job with me. Bottom line!

Mike: Mmm-hmm.

Rita: And number three, I've got to get the ratio of "interviews to hire" down. You know, I can't be interviewing ten people for every open job I have. I'd love to get that ratio for "interviews to hires" down to three-to-one.

Mike: That'll be a challenge, Rita, but let's work on that. If we can get down there, I want to make you happy, so let's see what we can do.

Rita: All right, Mike. I'm counting on you! Thanks so much.

Mike: Thanks, Rita. Bye now.

[phone ringing]

Jorge: Jorge here.

Mike: Hello, professor. It's Mike from the Future of Work Podcast.

Jorge: Ah, Mike. Yes, I remember.

Mike: I'd like to talk to you a little bit today. I know you teach electronics technology at your college. How long have you been doing that?

Jorge: Yes, I've been here at the college for about 10 years, and for 20 years before that I worked in the electronics industry.

Mike: Wow, professor you've got a lot of experience. What are you doing now to help prepare your students in your program to become members of that skilled technical workforce in the future?

Jorge: Mike, look, we do what we can. At the community college here, we do not have the ultra-latest equipment. I focus on fundamentals. I help students learn, and how to think. And we have some good industry advisers to help us make sure that what we teach is relevant. Employers seem to value the hands-on skills of our graduate. I'm telling you Mike, we do what we can with the resources we have.

Mike: You know, professor, that sounds good.

Jorge: Yes, but here's my problem. I can't recruit enough students into my program to meet the demand from the industry side.

Mike: Why not? You would think they would see the opportunity.

Jorge: I don't think they realize the career possibilities. If I could just show them what a high-tech workplace is like, if I could go to where the prospective students are and talk to them, maybe they would see. But I am only one person. If only I had some help!

Mike: Well, thanks professor. We'll see what we can do. Goodbye, Mike.

Jorge: Goodbye.

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Mike: Well colleagues, you've heard some of those challenges: Jake, a skilled employee worried about keeping pace with technology changes. Rita, a harried sort of line manager, struggling to fill positions with the right skillset. And Jorge, a technical college professor trying to get students interested in his program and wanting them to see some great career options. In our project Preparing Technicians for the Future of Work, we'll be listening to people like Jake, Rita, and Jorge. We have formed a great national industry advisory board for the project, and we're going to rely on our educational colleagues and leaders in the Advanced Technological Education field to inform us and help shape the initiative. We're going to be convening sessions throughout the country, and action sessions regionally, so that people can take action on the basis of our findings. Working together, we want to develop recommendations for educators, recommendations for

employers, and policy makers, and funding agencies, and recommendation for everyone that's really interested in this topic. We want this podcast to take you on a journey where, first, you discover critical implications of the future of work. And next, where you specify what it means to you. And finally, where you develop strategies and actions that you can take. And, in the future, we want addressing the Future of Work to become a normal part of what you do. Here's your first action: visit the website: "PreparingTechnicians dot org". Sign up to be on our contact list to become part of our community. We'll invite you to future podcasts. We'll send you unique resources designed for you, to help you make changes in your workplace, in your educational system, and wherever you are addressing the future. In our next podcast we're going to hear from the CEO of a mid-sized technology company. They're based in Florida, and he's going to talk to us about his view of the skill gap and who owns it. That's going to be an interesting podcast! Stay tuned for that one! Our series is produced by John Chamberlain at CORD. Thank you, John. And today our voice actors were Dominic Corbett as Jake, Melissa Johnson as Rita, and Nick Lesiecki as Jorge. And thank you, our listeners, for being part of Preparing Technicians for the Future of Work!

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