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Mike: From the Center for Occupational Research and Development, welcome to Preparing Technicians for the Future of Work. I'm your host Mike Lesiecki. In each podcast we'll reach out to people who are actually on the front line of the future of work and hear what they have to say. That means interviews with industry, interviews with working technicians, forward thinkers in the field. We'll do some background research, and we'll curate that research to make sure you have the most up to date and relevant information. And in every episode, we'll suggest 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, known as CORD, with financial support by a grant from the National Science Foundation's Advanced Technological Education program. Opinions expressed in the podcast do not necessarily represent those of the National Science Foundation. You can find out more about our project and our approach at "PreparingTechnicians.org."

Our guest today is Amy Kardel. She became a true technologist during her college years when she developed a language translation business using software. And later she built upon that entrepreneurial spirit by co-founding and leading the IT services firm called Clever Ducks with her spouse. You know, that chain of business successes led Amy to a seat on the Board of Directors at CompTIA, the world's leading IT trade association. And that included two terms as chairwoman. You know, along this journey of continuous training and learning, she also earned her Law degree. And today Amy serves as CompTIA's Vice President of Strategic Workforce relationships. You know, Amy, that puts you right up on the front of the Future of Work, doesn't it?

Amy: It sure does! And when I made that transition to staff on the nonprofit arm of CompTIA, I didn't expect us to be going through such a time of change that the pandemic really caused in the Future of Work. [Mike: Sure.] I think we've accelerated a lot of trends. I think technology's been accelerated. I think people are thinking about reskilling. And upskilling. And treating community colleges differently. Treating CompTIA differently. So, it's better to be lucky and good. I feel like I'm really lucky to be in the right place at the right time.

Mike: You know, for our audience, many of us know about CompTIA—what they are. But could you tell us essentially: what is this trade organization, CompTIA? And what is your role there?

Amy: So, CompTIA got started in the 80s, when computer dealers got together and said, "You know what? It's crazy that we have to certify with all these different vendors to be able to do warranty work." And so, that's the foundation of CompTIA: coming up with A+ certification that everyone knows [Mike: Right.] around the world. Right? And that became the vendor neutral certification in IT—par excellence.

And we are the second largest certifying body after Microsoft in IT. And Cyber. And Tech. And the whole pathway latticework there...really because we got started thinking about, "Okay. How can we be vendor-neutral and provide foundational knowledge?" And that business—of working with subject matter experts developing best-in-class certifications, and working with education and private users of those exams—is a big chunk of what our trade association does.

But we are a member benefit organization with members that are in the Tech space. And we also work through our foundation on a lot of things that help create pathways to get more people into Tech. Our tagline is "Unlocking Potential Through Technology." So, we are all about helping folks find a way to find their space and job—and good-quality job—in Tech.

Mike: I like it! "Unlocking Potential Through Technology." Really good!

You know, Amy, as you... Obviously your knowledge and your expertise is in the workforce area. So, if you think about the emerging technical workforce... Now, what I mean is

people that might come out of either college programs or individual training coming into the workforce. What sort of gaps do you see out there? Particularly, of course, in the IT area. The technical side. What do you see as a gap? And how do you know?

Amy: Well, it's an interesting kind of conundrum. IT is one of the things that's best learned by doing. [Mike: Sure.] But also following a curriculum. So, there's this "chicken and egg." Like, "I have an education. But I don't have job experience." "I have job experience. But I don't have an education." Ideally someone has a little bit of both. That work-based learning is often a gap we see. That's something we REALLY want to see people figure out how to fill. And that can be a course—the traditional things that schools look at from Capture the Flag competitions, to put something on a student's resume, to team projects and all those applied learning opportunities that a school applied.

We also see a trend emerging in apprenticeship, where folks are being paid to "earn and learn" at the same time in conjunction with school, or after-schooling, or as re-schooling is necessary.

So, we see either a resume with a lot of learning or resume with a lot of experience, but to have both together is really the golden ticket.

We're not advocates necessarily for 4-year degree for Tech. It's something that might come in the course of things. But we certainly are advocates of the certification pathways that prove foundational knowledge.

Mike: You know, Amy...just sort of a follow up on this. From the employer side. You mentioned that a resume could be all education or all individual skill attainment. But what does an employer look for? Do they put a numeric value on a certification in the sense that "Oh, that will gain them a higher incoming salary"? Or does it lift an application out of a pile? What's the employer's view of this education versus certification? (I'm not sure it's "versus" there...)

Amy: So, we see it be a "filter." I kind of call the A+ "a tick in the tech." We've done a lot of studies to validate and look at, "What do HR departments look for in job descriptions?" We're always looking at Burning Glass (EMSI) data around, "What are employers asking for?" And it's not a clear line. But there certainly is a trend that it adds incredible value to have Certification on a resume.

And I think, at the entry level: especially true. If you think about "What can you prove?" when you don't have a thick resume, that's a big piece. For a career changer, we see that validated, as well. So, we see all the way through our pathways that the certifications help. And support an application getting through the filter of getting to a job.

And, I think as an employer, I can tell a few stories around that. The hiring I've done over the years, hundreds of Techs personally. And the firing I've done of Techs, unfortunately, along the way. It's interesting. The technical skills at the IT consulting firm I worked with, we use the A+ as a bare minimum. And we said you had to come in the door with that. Or get it in the first three months of employment. And we'd help you do it. Why did we do that? It was because it proved that they had a learner's mindset. And had the ability to answer those questions under time pressure, which is not too much unlike working a job in IT. There is client pressure. There is time pressure. So, we found it to be a proxy for two things: learner mindset and the ability to give the right answer under pressure. Of course, it was a little bit of a fallacy there. You know, we don't know what happened to the people we DIDN'T hire, and DIDN'T keep on, that DIDN'T pass the exam. But we do know that the few we tried to keep, who weren't able to pass—they just weren't a good fit for the fast pace of IT in a consulting company. So, that is a way I've used that exam as an employer.

And it had a few surprising effects, Mike. Like, "People who pass an industry-recognized credential get kind of a boost in self-esteem that comes from a third-party validation." Sure. My little consulting company could say they were great. And they could be hired. But the seal of approval from CompTIA added something. And increased the quality of their engagement and work.

And then we put everyone on a growth plan to continue learning. Like, "What's your next certification going to be?" And most of those were CompTIA certifications, but some were also Microsoft or vendor specific depending on their role. And that continuous learning is something you really need to have in IT. So, I think that's the other thing missing on resumes. Is that the train keeps moving in IT. And if you don't keep up with the latest technology, it's not a great field for you. So, convincing people that

they have to be lifelong learners is part of the challenge everyone who works in IT faces.

Mike: That's a good point. Speaking of "keeping up." We were talking about the entry workforce a few moments ago. But what about the existing workforce now? I think you use the term "re-schooling." Some people call it "upskilling." How does an existing workforce keep up? Do companies say, "Hey, you ought to take that next level certification"? Or do they do it internally? Or do they send them to vendor specific training? How does it work?

Amy: Well, I think back "in the day," we used to send people to vendor specific training quite a bit. [Mike: Yeah.] An employer investing in travel... And some of these certifications are thousands of dollars... And the time off work... Like, that's become less and less appealing. And now that we have, of course, everyone's used to a Zoom call. [Mike: Yeah.] I think most of it is delivered that way: self-paced, perhaps, and on-the-job. But a good employer does put someone on a growth plan that includes an "arc" training in a direction—be it more toward Cyber, more toward Project Management, could be Data Analytic. But really thinks about, "Okay, what does my company need? And what can I do to put someone on a training plan?" And I think that has another huge benefit, which is retention.

In Tech, people change jobs quickly, traditionally. And every company is trying to not only fill the talent gap they have, but make sure they retain and continue to grow. So, putting someone on a "talent-growth plan" like that can really show to the employee, "This is a company where I can grow and learn." And, of course, steps in pay are included in that, and responsibility, and such. So, really thinking about how you build that arc is important. And, of course, CompTIA certifications are a part of that as well.

Mike: Sure. Thinking of those technical skills that, for example, an existing employee might want to acquire. Let me ask this question. Does today's IT technician need to be AI knowledgeable? Is that considered a must have today? What's your thoughts?

Amy: Well, in a "specialty" it is. But generally speaking, probably not. We've developed a pathway that starts with a new certification that came out this year called "Data+" to think about data analytics. And that bridges into that topic. I think AI specifically... Obviously, it's a very

expansive field. [Mike: Sure.] And a lot of tip-of-the-spear type people who have PhDs that are really involved in that. But on the frontlines, I would say, not as much. But our pathway into that from the frontline is the Data+ certification. So, we see that as an emerging field around data analytics as well.

Mike: You know, it's interesting that you say that. I was doing a recent interview with someone on the manufacturing side. And do you know that they said the same thing? "We see this move towards data proficiency." Or "data." Whatever the correct term is. [Amy: "Literacy", maybe?] Yeah, it was important. Now you're saying it from the IT side. They're saying it from the manufacturing side. So, you can certainly sense that, as one of the drivers for today.

Amy: Certainly. It's more "data" now than ever. How we're going to work with that is really important to understand.

Mike: It wasn't too long ago, Amy, where people thought of IT as "programming" and "coding," right? And somehow, they frame that in their minds. But let's look at today's world. Is that equally as important? Or have AI and machine learning systems taken over some of the programming and coding tasks so that the IT Tech's responsibilities are different? Or do they still have to be C++ or Python knowledgeable? Or what do you have to have today?

Amy: That's a good question. Because coding has totally changed, right? And in Tech, our space traditionally has been everything but coding. [Mike: Yeah.] You know, we are the "plumbers" of IT. All the important plumbing: cybersecurity, networking, and operations, and such. And then the code runs across the plumbing. But there's certainly little bits and bytes of code that go into just making that happen. And that has become easier than ever. So, we touch on that. And, of course, these two worlds are converging. And it's interesting, because coding is the number one thing people think of as a job in Tech. But really, it's IT infrastructure that's a lot more of those jobs.

So, there's a couple of myths to bust there, including the fact that, interestingly, most Tech jobs aren't at Tech companies! A lot of our certification holders and workforce is not in a big Tech company you think of. They're in every other company that uses technology. [Mike: Yeah. Sure.] Yes, right. It's hard to think of one that doesn't these

days. So, there's a lot of off-the-shelf code and pieces of the stack that, you know, need to have an understanding of. But our certifications are on the infrastructure side of the house.

Mike: Sure. Makes sense. Another question for you. And it has to do, I think, more with my lack of understanding of terminology here. So, I tend to lean more towards advanced manufacturing. Just in my own world, right? And I see that Automation-Robotics has really taken over, in a sense, a lot of the processes there. But in IT, when you talk about automating a process, you don't mean physically with robotics and devices. You mean something different. What does a technician do when they're tasked with automating a process? What exactly does that mean?

Amy: Yeah, it's a different world, isn't it? So, we push electrons around, right? [Mike: Yeah.] So, we do that with scripts and coding. [laughing] So, there's a lot of tools that allow us to manage networks at scale. And I think this is one of the reasons it's so important to have people trained well in this. Because one false move, and it can have a huge impact [Mike: Yeah.] on the availability and uptime of a network.

But all those things that get pushed out through these tools are all scripts. So, we automate things by batch process. And it's a computer process, right? It's a program running somewhere, one way or the other. And all of those things. Like my computer just popped one up now. It says, "Reboot [Mike: Yeah.] because we've got some updates." Okay, there must be a bug that this is going to fix. [Mike: Yes.] That's the kind of thing that our technicians work on.

Mike: Okay. Makes sense. Amy, as we're wrapping up today, I was looking at... (I'm going to quote you for our audience, if I can.) This is what you've said: "Through my work in California, across the US, Europe, and Africa, in large and small Tech companies, I've seen the many challenges employers face in closing the skills gap for the Tech workforce." Okay, you've seen that, Amy. You've seen those challenges. What do you see are the opportunities going forward?

Amy: I'm an optimist, right? I wouldn't do what I did, unless I was excited about helping people get quality jobs in Technology. I think the opportunity lies in helping people understand there's a place for them in Technology. That they don't need to be afraid of it. There's sort of a confidence gap, we call it. [Mike: Yeah.] Like, "I don't know if I can do that!"

I just addressed somebody about that yesterday. Personally, in my life, I was having an appointment, a little errand for the car. And got chatting, you know. It's like, "Oh, I could never do that. You have to know a lot of math and science." "No, you don't!" There's so many roles in technology where you don't need to be afraid.

So, we're working on myth busting around here. You know, "There's a place in Technology. If you're interested, talk to us further." And that's a huge opportunity, because I think a lot of times people are their own "limiter" on that.

And the other opportunity that I see that we're working on is really thinking about... Okay, the Technical skills "certification stack" we really have figured out. As an employer, and coming from industry, I think it's kind of the soft skills. What we are now calling "durable skills." "Professional skills." THAT gap is something we think we can train and help people close. Because oftentimes success doesn't hinge on technical skills, but really on the softer skills. So, that's something else we're working on, and see as a huge opportunity.

Mike: "Durable skills." That's a great term isn't it? It makes sense, too. I think that "soft skill" term gets overused. But "durable skills" makes—to me—a lot more sense. Good point!

Amy: They follow you your whole life. Keep building on 'em. And they transition to different jobs. And that's one of the other opportunities we see: is people wanting to get into IT, and coming to us from other industries, where they have these skills in the durable-skills category. But they need to have the technical skills. So, we see that as a huge opportunity.

Mike: Cool. In our Show Notes from today, I'll make sure I put a couple of notes that people could follow the links to. Not only CompTIA. But I know you mentioned that you've been involved in the Apprenticeship programs. I'll put some links in there for our listeners.

You know, today, it was interesting, you made some really key marks. I took notes here. A technician today, a person coming into the workforce, needs to have two things: a learning mindset (I like that!) and the ability to perform under pressure—because that's the nature of their work! And I think those are two important things that struck me.

And then as you talked about, "How does one keep pace? Being on a development arc." I liked that terminology, I could see that "arc" in my mind, of skills increasing as you went through.

So, those were great points today, Amy. I really appreciate your taking time off of your role at CompTIA to talk with us today.

Amy: It's fun to be here. And if we can help you with anything further, come check us out at CompTIA.org

Mike: I'll make sure: lots of good links in the Show Notes there. Thank you again, Amy.

Amy: Oh, my pleasure, Mike. Thank you.

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Mike: Listeners, today we heard Amy describe IT strategies, including Certifications and Apprenticeships as methods to unlock potential through technology. In the Show Notes, you'll find links to their Certification and Apprenticeship programs. And your task is to examine this information to see if it makes sense for you to incorporate these strategies into your own programs.

We'd like to acknowledge today our Audio Engineer, John Chamberlain. Thank you, John, for all the excellent work you do in making these high-quality audio podcasts. And we'd like to acknowledge the leadership of our Principal Investigator in our project, Ann-Claire Anderson. Thank you, Ann-Claire. And thank you, our listeners for Preparing Technicians for the Future of Work.

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