TRANSCRIPT

Integrating Emerging and Cross-Cutting Technologies: Manufacturing and IT with Diane Meza and Leah Palmer

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SPEAKERS
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Mike Lesiecki
Our series on the Future of Work is continuing with the focus on integrating emerging and cross cutting technologies. We are hearing from educators on exactly how they are creating changes and new opportunities for learners in partnership with industry. Note that this presentation does not necessarily reflect the views of our sponsor, the National Science Foundation. A video version of this presentation is available on our website, Preparing Technicians dot org is my pleasure now to welcome layout and Diane Leigh, I'm gonna ask you to introduce yourself and then Diane, and then we'll get into the presentation itself. So Leah, go ahead.

Leah Palmer
Thank you so much and happy to be here. The Future of Work has been both a passion and a goal for the work that I do as the executive director for the Advanced Manufacturing Institute. And what we do as an institute is we look at systemizing opportunities for our colleges to have assets and resources for the of future work.

Mike Lesiecki
How long have you been at the colleges?

Leah Palmer
That is a great question because I don't count all of the years, but long enough to know that I've seen a lot of change. And I'm, I'm thrilled to be part of what's coming. Great.

Mike Lesiecki
Diane, tell us a little bit about yourself and your current position.

Diane Meza
Thank you Mike, Diane Meza, director of the Maricopa IT Institute. And I've been here five years we are a workforce IT institute that is all things Future of Work. And we make ourselves available to industry in whatever capacity they need. Mostly we're standing up short term trainings, usually accelerated trainings, or some type of creative type training for industry that lead to certification and employment for our students and fill the talent gaps for industry. So happy to be here today. Perfect, Diane.

Mike Lesiecki

Folks, you notice that we have our colleagues are from manufacturing and IT. And that's the focus of today. Leah why don't you take it from here?

Leah Palmer

Thank you. This is data. And we all know that there's access to data. But what I have been passionate about is, before starting to investigate and build programs for the future, you have to know the data of where you are and where it's going. And so our practice is to look at data mining for the opportunities and the ones that you see here aerospace, and semiconductor, and motor vehicle manufacturing. And that includes EV, pharmaceuticals and even battery manufacturing, are all now in the high high numbers that need to be addressed by the institutes and by education systems, that leads to the to what do you do with the data? Well, what we did at Maricopa, we made an entry level collaborative program called technician Quickstart for semiconductor, and we had Intel and TSMC and others at the table to help build the competencies that they felt were primmer for an entry level position. And this served as multiple things that we had to come up with, in order to ensure that we would have students that we would have faculty, we needed to create this in an experience that was very short term, because in order for people to be able to come into the program, they had to adjust their childcare and they had to adjust some of these factors. And making it shorter term with high impact allowed us to get more people to come in the door. We also took the burden of economic disparity in people can't afford paying for the rent, or they're paying for their community college course. So we paid the course upon successful completion that gave the onus of completion as the goal for the student and earning industry recognized certifications. As Diane had mentioned earlier, certifications are validating tools. And they give short term kind of appreciation for the individual that earned it to know that they're making progress, but also for the industry partners to see that they do have this acumen and this skill set. And then in addition to that, we knew we needed to build the bridge between industry and those who are competing or completing the program. And to do that we brought onboarding all of the hiring staff and we did site fairs at the community colleges to give that direct connect that ability to have conversations with industry and to see how far you could go and what the opportunities within those different industries were

Mike Lesiecki

Leah, I have a question for you. You mentioned this key connection with industry. Did you build on an existing program? Or did you start from scratch? I mean, how did you get that input and transform it into curriculum?

Leah Palmer

Well, there are a lot of pathways and curriculum in current existence that teaches pieces and parts of what actually happens in a semiconductor fab. But what we didn't have is we didn't have that ability to tell the story of semiconductor and to to mirror what our own community was putting out there with onboarding and relocates of tons of semiconductor companies. And there isn't really other than maybe showing a video any kind of context for what happens in a semiconductor fab because it's somewhat secretive. So what we did is we took the mystery out of it, and we made industry give us those basic entry level skills that would help us tell the story of what their opportunity and what semiconductor is.

Mike Lesiecki

Okay, cool. Sorry. Go ahead, then. Yes, please.

Leah Palmer

So the question that you just asked is, How did we make it happen, and the actual a way of making it happen was we knew that it needed to be accelerated. And we knew it needed to be across multiple colleges so that we could bring to scale the number of outputs of people who would be finishing. And we also had to have faculty and faculty can be one of the most difficult assets to secure. And so to do this, we actually recruited from industry, we recruited 49 qualified instructors of which we're currently using 20 in a semester, and they're teaching with the insight that comes from being part of the semiconductor ecosystem. We also did joint marketing and systemized marketing, and using updated technologies to get QR codes and social media to help us recruit. We did industry hiring and recruitment, as we mentioned earlier, and DEI is so important, not just to the colleges, but to industry, they're trying to change the number of women and technicians and diversity and equity. And that meant that we had to reach them for them to even come in the door, and state partnerships. No one is an island, we are looking at a combination of state economic development, industry, and education of all needing to be partners in this process. So I mentioned the data earlier looking at data as to what the economy and what the future looks like. But also we're looking at the data of the students. Now this information is really eye opening, because even though this was just at the end of our first year of accomplishments with with putting the Quickstart out there, we ended up having 65% Students of Color enrolling in these classes, and 32% female students, which is an uptick from where it had been without any kind of infusion, or or marketing. But here's the big one, first generation college goers 50% of those hundreds of people coming in to that QR code and Quickstart are first generation college goers, which means that's a new customer to education. And someone who's going to learn how to be part of education our first generation we found after our first year that we had 62 of them returned for additional classes, the number of students served tends to still climb we're over now 900. And what we also have is that we have the slowing of of industry waiting for the chips money that is preventing us from looking at this in full throttle. But now that we're measuring, and calculating how many entry level positions that we want to make sure have access either through attrition or from build out.

Mike Lesiecki

Leah you mentioned waiting for the chips money you're referring to the chips Act funding, right. So has that does that support this in part or that's something that's still on the near horizon?

Leah Palmer

It's on the near horizon and I appreciate you bringing that up because the infrastructure with which many of these companies and relocates are building requires construction and there isn't enough work and workers out there to be able to meet the need of actually, you know, increasing the footprint of semiconductor locates. We're also seeing that because the chips act is is federal and monies have been llooked at in terms of grants and and meeting their needs, that if the money is coming in, in iterative fashion, meaning that they're getting him in part, and then they're planning with the money that they were actually awarded, that has taken some of the timelines out of these Quickstart students have coming in the door as their technicians.

Mike Lesiecki

Diane. Let's turn now to to you and talk about integrating some of these IT skills, what were the drivers for it? How did it all work why don't you go ahead.

Diane Meza

Well, thank you so much, Mike. And Leah, yeah, I'm gonna drill down to just at least one example. So we can get down to what I like to call the nitty gritty of how it really came about, as we know, job descriptions out there are either ever changing, or they're not changing quick enough to meet what the employers need. And so I'm going to walk you through the process that was intentional and somewhat organic. And I want the people watching or listening to this presentation to focus on the skill areas, one and two that you mentioned, Mike, with CORD, because they organically started to come about as we did as we work through this process. So Leah, and I knew it was validating that we were doing the right thing as we were working with this company. And that was great for us to have that in our back pocket. The company that we worked with was a manufacturing company. And they came to Leah, the director of AZAMI and said, Hey, we're going to promote 15 employees, but they're lacking in some skills, we can't promote them if they don't have some IT. And they learned with Excel, they said we really need Excel. So what did Leah do? She immediately came to me, here's the beauty of mashing up two institutes it with manufacturing. And she said, Diane, they want Excel. I said, Well, gosh, we've got Excel so many different ways. Let's go out and meet with a company. And we did we went in person to the company because we could, this could definitely be done remote if need be. But they were close enough in our backyard that I could bring the subject matter experts and myself and our team over there to sit down and really hear about their pain points. And I think that's where educators have to be very careful, because we will ask industry, what do you need. And they can tell you somewhat what they need. But the reason they're calling on us is for us to consult and help them figure out what they need. So we have we walked around their facility, they gave us a tour, we got to look at the reports that the employees were doing. And they showed See, this is an example of a report that really needs help. This is an example of what we're looking for. And as we have the subject matter, experts there, we're taking very detailed notes, everything they're saying we're putting down on paper or on our computer, and we know that IT is not, you know, siloed we know that this is happening not just with manufacturing, but with healthcare, construction, you know, other sectors. And so as this means you're listening to the collaboration, the empathy, the time management, the communication, as they're talking about Excel, and you have three leaders there. They're throwing things out as they're thinking about it. And so what we're doing is taking, you know, very good notes, and then asking them to prioritize those once we have the discussion. So once they were prioritized, we said, Okay, here's the existing content that we do have, we showed them what we already have. And they looked through and said, you know, that is just too much. We just don't need all that. So we drill down to the next smaller course. Okay, we're getting closer. But we need less of that and more professional skills. And this obviously couldn't happen in one meeting. But I think as educators, we have to be very careful that industry does not have a lot of time. So we tried to streamline the process as much as we could, and not duplicate meetings for them. And, and we learned a lot in this process of how to streamline that better in the future. Once we got it drilled down to exactly what they were looking for. We piloted the course. And what we did is we put professional skills and IT skills together. And they wanted the course to be in person. So they let their employees leave work and come to us for a week in person that is hard for a lot of companies to

do. But they did it. It was a priority for them. And we taught the professional skills in the IT skills together. At the end, we surveyed the students, we surveyed the leaders, we surveyed the instructor, we did a plus delta, what do we do different next time this was our pilot, it was our first time we got a lot of good information. And we went to I guess we could call it pilot number two. And we we taught the course again. And I will say this is one thing that educators also need to be aware of industry doesn't have a lot of time and they'll give you all the skills that they're looking for. And they'll want it to be taught in a short amount of time, because that's all that they can give with their employees. And that's where your subject matter experts are so valuable and needed and important because we don't just want to train something so fast and safe. We did it we want to make sure that their employees and Students are retaining the information. So there's a balance there that we worked out with pilot number two, it went very well. But what we did learn is if they really want all this content, this is back to what Leah said, we have to have a menu of options for this training. Not everyone can send their industry people in person. So we said What if we had part of this online and part of this in person? Great. So we develop the content in a hybrid format. We developed it in a self paced online format. And then of course, we still had our in person training. So now we can offer industry a menu of options based on their employees schedule, and demand and how many employees they really have, because some do not have the, I guess, the luxury of having people leave their, you know, their, their workplace. And so as we developed the three different, you know, types, we had a nice menu of options. Well, when we did that, Leah went back to her other partners, and she socialized this technician IT Fundamentals course, this is what we started calling it of course, the name evolved out of what we were doing as well. We didn't have the best name. When we first started, we had to work through that. And now we call technician IT fundamentals. And it seems to resonate with our partners understand what that means. And she said, Hey, did you see that, you know, MITI and the Maricopa IT Institute and AZAMI Advanced Manufacturing Institute developed this, she had six partners immediately that jumped in and said, I need that yesterday. And then we knew again, wow, this is not just for this one company, we are on the right track, we need to keep going with this. And as that happened, we asked them for their job descriptions. And we we noticed the job descriptions weren't updated with what they were asking for in the class. So that promoted a conversation for us to say, Hey, can you update your job descriptions? And look at the outline of this course look at the competencies Does this meet your needs, and in fact, they said it did. A fantastic piece of this course is the credential, like Leah mentioned. And it did lead to the Arizona career readiness credential. We had that baked and built into the course where they could get a credential for digital literacy. In August that exam, it stopped in Arizona. And I think this is a great example of how we as Institute's need to pivot when these things happened. Because even though that exam wasn't available anymore, our partners still needed something. And they needed some type of credential. This is where we brought the course into our colleges to create make a micro certification. And we had a lot of support with the college to do that. And they out of this conversation started coming up with a program to implement badging for the Microsoft certification. And having the subject matter experts there was outstanding, because they said, Did you realize that this course is going to prepare students for the Comp TIA ITF plus exam, and I did not know that. They figured that out. And we added and tweaked a few things into the course. And we are now rolling again with a credential. So I'd like to now just go through the content of the course they quickly just quickly, kind of an outline of what they learned. They recall computer hardware and components, navigate windows, manage files and folders, word processing, basic formatting, text editing, learning PowerPoint presentation, not just how to make a PowerPoint, but how to give a presentation. Remember, these employees were going to be

promoted, they were going to be supervisors, they needed to be able to present to their employees. Also spreadsheet, Excel, let's go back to Excel was their first request. That is the I would say the biggest chunk of content in this course, is Excel, because that's where they're doing the reports. And this is also where the professional skills comes in. They they are not just required to do the report, they have to communicate the report. They have to you know, make inferences based on the report that they're that they're creating. They also identify databases and data analytics tools. So let's go back to that skill area one and two that Mike talked about spreadsheets, databases, analytics. So like I said, we knew that we were on the right track and the course is done and ready and we're ready to roll it out a third time

Mike Lesiecki
On this area. We'd like to bring up forward several questions that really is a discussion. You mentioned the certifications is this course for credit as well as a part of a degree pathway.

Diane Meza
It started as non credit because that's how we stand things up quickly for industry. It is now in the process of becoming credit a credit micro certification that will be badged and will prepare students for the industry exam.

Mike Lesiecki
Okay. And that badge is issued by a community colleges.

Diane Meza
 Yes. And it will be one of the first badges issued with the with the new program that came out of this conversation with micro certifications.

Mike Lesiecki
You know, both Leah and Diana and I've there's been a lot of discussions across the country. about micro certification and badging, and sometimes industry looks at it and say, Well, what is this, but in this case, they're the ones that helped generate this. And they're going to be looking for it not not having something foisted on them, but something that they wanted. Is that true here? Well,

Diane Meza
I believe so. And this company has been a real advocate for this with us, they, you know, we even have a couple employee connections there where they were willing to either give us quotes or come in and talk to groups to say, this is how it's helping in our company. And when they're a manufacturing company, and they're talking to six other manufacturing companies. Of course, the buy in is there because they're talking the same pain points that most of the other companies are, are dealing with. But yes, absolutely. They they felt the buy in. They felt I believe they felt important and validated. But I think most importantly, Leah and I had to follow up after the pilots and say, did this work? Sure. Are your employees doing what you hoped they would do? And lucky for us, they were. But we can always improve and do better. And so we still did a plus delta after pilot to, we made the changes. And now like I said, we've got three different modalities to deliver the content,

Mike Lesiecki

we turn to Leah, Leah, as you reflect on this process, one of the things that really strikes, one listening today is this key collaboration with industry. But there must be some challenges too, right? Sometimes industry just wants you to keep adding things to your program and adding and you ask them, okay, what should we de-emphasize? And they say no, don't de-emphasize anything? Is that fair, what's been the challenge in working with industry,

Leah Palmer

working with industry, they're dealing in what I would call, and coin, real time, their needs are immediate, their outputs are incredibly important for their success. And so a lot of times, they don't just pause and look at thoughtful ways of how they're going to grow something. What happens is that with the advisories, for example, we're in a position where we can give them information about these new technologies and these needs. You know, in the demographics that I shared with you earlier, we have students coming in that are 40 years old, and some students as old as 65. Not only do they have previous skills, but they're also missing skills that are the new technologies that are going to be in that fab or in that job description. And so to bring them all of them, students know how to work their phone, but they don't know how to work in Excel spreadsheet. And almost, I would say close to 80% of jobs descriptions now are asking for technical computer literacy, so that they have the capacity to even log on and check in when they go in the building. So some of these things that seem very simple, you know, simple and inconsequential. They are and it prevents good people from getting in the door for a position. So what we're trying to do with our advisory boards, in across multiple modalities of of, you know, industry needs is to say, You're needingm IT, we've got opportunities here for you to infuse that now, and not only infuse it for those that are incumbent workers, but infuse it to our curriculum for our current pathways.

Mike Lesiecki

I like that they're they have needs and you have solutions. I like that approach to it. That's something that's industry talk, right they they understand that sort of language. You know, today what struck me listening to you both was several things. Again, that industry responsiveness but also your attention to being able to scale this? I mean, all of us know it's a new industry might move into town while we need 800 technicians What can your program provide? Well, currently our enrollments about 20. So I'm joking there a little bit, but that is a scaling is an important issue and the DEI component Leah and Diane I think I saw a statistic it's probably a few years old now that percent women in the semiconductor manufacturing industries is around 26%, it may be a little bit higher. And it you mentioned you have 32% in your program. Okay, that's not it's not 50%, but it's moving in the right direction, you really are attracting that diversity that the industry is committed to. So that struck me is this is very important. So again, our colleagues, Diane and Leah want to thank you for showing us how one brings in things like it in response to an industry need. And let me as we wrap up today, talk about a little bit more about the resources that are vailable from our project at preparing technicians.org that's all one word. We have a white paper on sharing a framework for a cross disciplinary stem core. We have instructional cards available which are small learning activities that can be implemented right in a classroom. There are podcasts record re excuse me, sharing recorded webinars like this one. Here's an example of some of those instructional cards. And you can see Diane on the left side the third one down is spreadsheets right? So you mentioned that these these first two bullets data knowledge and

and analysis and advanced visual literacy are key to some of the things we're talking about today. In our podcast series. This webinar will be available in the audio format for audio listeners. You can see some of the prior podcasts in the series here. recordings of this series are available online. There are additional professional development and resource instructional resources linked to each of the recordings. So colleagues, please visit or let everyone know about preparing technicians.org/webinars Join me in thanking Diane and Leah for the presentation today. That concludes our webinar.