

Transcript for Session 5: Developing a Supply Chain Automation Program: From Concept to Creation

Dr. Slowinski: thank you for that presentation and sincere appreciation for their support of this symposium and for the center as a whole. In queue. All right, our next session is entitled developing a supply chain automation program and concept of creation. However presenters are Dr. James McDonald, at Valencia College, and Professor Kevin Curley, at Valencia College was sealed. Remember, poster questions in the chat window and select analysts and attendees. We have set aside some time for Q&A at the end. Dr. McDonald will get us started.

Dr. McDonald: How are you doing? Can you all see my screen?

Dr. Slowinski: yes, looks good.

Dr. McDonald: Good afternoon. Before I get started, I want to start by thinking the national Center for giving this opportunity to share our experience and building this supply chain automation program. I also want to acknowledge -- sorry -- I want to acknowledge the support we have received from the National Science Foundation and the ATV grant. -- ATE grant. I want to recognize the centers of excellence that supported this work. They have provided wonderful and needed support, we are grateful to Marilyn from FLATE and Steve Harrington from the National Center for supply chain automation. I also want to recognize our industry partners, they have been critical for our success and you will hear more about them and their involvement. I also want to give a shout out to Phil Jones from target, even though target is not part of our advisory board, he was gracious in giving us a letter of support for the development of our program and that was critical to get the approval. So thank you. Now for the reasons we are here. The development of our program at Valencia College involve three stages. The first is the expiration stage. Prior to starting on this journey to develop the program, I had no idea about the field. I started the trip without knowing the destination. After receiving approval to create the program, the next phase kicked in, which is the development process. What is important to note is that the supply chain automation program is being developed with engineering and technology, something Valencia at -- Valencia College did not offer. We did not have a course so we had to start their, the development of the engineering technology degree. We were able to add a supply chain automation specialization. All that was left

was to teach the courses. Kevin will share his experiences with implementing the program as well as the growing pains we encountered. The exploration process. In 2016, I was asked by my campus president to explore what it would take to offer an engineering program at the Osceola campus. It is near Disney World. We had an electronics degree. I was given a task, I did not know anything about engineering programs or the degree. The first person I visited was our assistant vice president. He was the former Dean at the electronics and a gearing -- and engineering degree. He suggested I speak with Marilyn, the director of FLATE, which I did in 2017. Marilyn told me about the statewide engineering forum and suggested that I continue the next forum, a good way for me to beat faculty from across the state as well as vendors in our program officer for the state. Shortly after that forum, I learned about the high-impact conference that was going to be held in salt lake city. I attended that conference in search of knowledge and ideas and I'm happy to report that I discovered both. I attended a presentation about supply chain automation. Colin spoke about the supply chain model they developed in the process they used and industries who supported that work. I decided to pursue a grant to develop a supply chain automation program. So what about that course? As we were biting our grant application, a question about whether the college would add an engineering technology program had to be answered. The college leadership approved of both. We received word that our grant was approved in the develop and work good start. It started July 1, 2018 and ends June 30 of this year. Ration phase was not just about -- the exploration phase was not just learning about the programs, it was about building connections to people. It was during this time that we developed connections with Walmart, target, FedEx, Tim in -- to name a few. I attended conferences such as those put on by NHI. Those conferences not only helped me better understand the industry that connected me to the representatives who would later serve on our advisory board and support our program in a number of ways, I cannot say enough about that part of the explanation phase. -- exploration phase. I'm not going to go deep into the curriculum development except to say that we were able to leverage some funds from the grant, develop that program, and we had luck on our side. Now that the program was approved in February, we were able to hire Kevin the week before spring break in March of 2020, which was the week before the pandemic hit and the college froze new hiring and the nation went into lockdown. It goes without saying, we got lucky with our timing. Kevin was able to attend this conference last year, which is why we want to bring them on. We were able to get Kevin on board and give him the time he needed to launch the

program later in 2020. As I mentioned earlier, the grant was a three year period starting July 1 of 2018 so our plan was to develop the curriculum and get state approval for years one and two of the grant and year three, we received approval from the college curriculum community. The program will launch August of 2021. The slide describes the steps and timeline. Step one in the process was to conduct a DACUM. You know the National Center already conducted one, we thought it was important to conduct our own. This allowed us to engage our local industry partners invalidate the results. I could say that our DACUM, we ended up with similar results. Still, the process was good for us, a good process to hear from our local partners, what they thought was important. I want to add, yesterday, I sat through Ned Young's presentation. I know the curriculum has evolved and now incorporates more network repair and Cybersecurity and I know Kevin is looking at that as well. The program he is going to share has evolved and will be different next year. A key deliverable for the grant with the development of the curriculum, the supply chain specialization did not exist in the state framework in Florida so our next step was to develop the framework for the specialization and submit a justification for the new program to the state Department of Education. The justification had to be based on market needs as well as industry support. Several DACUM participants provided letters. However, before submitting our request, we presented the framework to the ET forum. We did this live and through email and it was a key step because when we did presentation , I remember doing it personally in Sarasota, someone from the state was there and he saw the collaborative nature of the developing of this program which I think helped with the development of the program. Next, I want to talk quickly about pathways. We had pathways in mind, where our students are coming from, who are student are going to be. We figure they will have a mixture of nontraditional students, people from the workforce, getting be scaled, retrained, along with traditional students from high school. We work with high schools to develop a career pathway model for students in manufacturing programs. We also thought about where are our students going to go when they graduate? Our attempt is they are going to go to work but sometimes people come back to college or transfer to the faculty level. That is pretty much it for my portion. Kevin will share his experiences with developing the courses and teaching the courses. I'm going to stop sharing so Kevin can share.

Kevin: thank you. Hello, everybody. I wanted to leverage off of what James said. Some days, I feel like a horse and some days, I feel like a cart. There has never

been a day where I felt like I'm the person with the whip driving this thing. But I have a chart where I point out a couple of milestones. I was hired in the spring of 2020, charged to launch the horse, which is the ET program, in fall of 2020, then also to launch the supply chain automation program a year later, this fall. I'm going to talk a little about that. From my perspective, it was like, OK, I'm hired, all I have to do is spit out a few courses. That is easy to say but it is a lot of work to get there. I am still working on some core courses and I will tell you more about that in a little bit. I am not a one-man band, I have a couple of adjunct professors that help me, I have one who covers my technical math and I have one that covers engineering and graphics along with me because that is a popular area. We always have many sessions. I have a few bullets on the right. I'm going to talk about my year one, about building the courses, then a little bit about our equipment and facilities, and in each of those, I will talk about the challenges in those particular areas. Then I'm going to wrap up with the key challenges moving forward. Sorry, I'm having a technical difficulty here. So year one, I was mentioned -- I was hired in the spring, I had a couple weeks on campus where I met a few people, I got the tour, all that sort of thing. Then I went off to Atlanta with James for the spring 2020 symposium. We contacted the college and they said, don't come back to campus, go home and self-isolate for a few weeks. That was a bit of a surprise. It was a unique entry into academia. It did not matter because when we got back, it was spring break and the campus decided that we were going to be shut down and not return to campus after spring break. All coursework, in rapid fashion, went online. For me, it was not a big deal because I was not teaching at the time but it did mean everything I was going to be preparing for the fall had to look at it from an online perspective. I started to look at the courses, to develop them. It was a bit of an eye-opener for me because in discussions, we had force outlines in that sort of thing -- we had course outlines and that sort of thing, but we did not have the course that goes along with those outlines. At that time, I started to begin to realize the amount of work ahead of me. One of the other things I want to mention during that early first few weeks, I was fortunate enough to have met a couple of the key equipment providers. Rod, Steve, meeting those guys, hearing about their equipment, understanding who they were and the fact that they get around not just the state of Florida, but the country as a whole, they know what is going on at various schools, who was using what, and I found that they are a great resource to reach out and talk to from time to time. I also met the industry partners that James mentioned. One of them, I was almost able to go work in the Amazon distribution center last summer

to sort of fill the roles of the supply chain technician for a while to understand what the job entails from a boots on the ground kind of perspective and unfortunately, squashed that idea and I'm hoping that might come around again because I want to have that opportunity. I think it will benefit me a great deal and influence it will allow me to have on the students will be improved. Then the organization's NCSCA, being at that symposium was a great indoctrination and I met people and got a good feel for what this whole thing was about right from the start. So here I am, new? Dave Young. I have never taught before, I am 40 years out of an engineering career. I am not entirely new to teaching, I have had opportunity in my industry career to do a little bit of teaching and mentoring, so it was not a big stretch to feel like I could go and teach some young minds. I was fortunate in that I was able to plan my fundamentals of electronics lab as a face-to-face lab on the campus so that was a benefit to me because I did not have to wait until this year before I saw some students. Seeing students and interacting with them is a great benefit to me. It is not the same online. I'm sure everybody knows that. The students will tell you that too. I have been able to teach that lab face-to-face last fall and this spring. We were completing this week with finals and again in the summer. I have two classes that are going to be face-to-face labs. In the fall, I'm going to have more. I will tell you about that as we go. Valencia as a whole has a great supportive environment. Everybody has been helpful, we have good teaching and learning Academy staff that helped me get up to speed on how to build online courses and I feel like over the past year, I have become an expert in canvas and how that works and I do not have any problems with that now. Let's take a look. This shows the program. I color-coded this to talk about the course building. I don't show the general education courses but we have these core foundation courses and then we have some electives that are common and then we have our two specializations, advanced many factoring and supply chain automation. Green courses, these were existing courses at the college that I was hoping we would just be able to bring them over and use them and reformat them for me and that is basically what we were able to do. The blue courses, these are courses that I built. They had all been online until now and we are teaching them, a couple of them are going to be in the summer but they are all online except for the fundamentals of the -- of electronics. I'm going to have a face-to-face lab in the summer on any factoring materials and processes. There will be two face-to-face labs during the summer. The orange courses, these are courses that exist in our college but they are part of the BS degree at our West campus. It was thought I could use those but it turns out there are some specifics

about those that are particular for that program. One of them being prerequisites that will not work for me so I'm going to have to build a version of these for the AAS degree program -- AS degree program. I have something that I outlined and it is in the approval cycle now, hoping to teach that in the fall. Then everything in black text is a course that I still need to build and I have not had a chance to look at those yet. Next semester, I can get serious and be prepared to teach them. Some numbers here, if you were to look at the statistics, I built it courses and I have 14 more to go. -- I built eight courses and I have 14 more to go. The program phasing -- let's look at the course phasing in terms of what we are offering when. This shows the semesters from last fall until now, even into this fall, and we started out with some of the core courses last fall and three of them have pushed through, we are probably going to teach those every semester. We introduced our industrial safety and intro to quality assurance in the spring and those are online courses. They may continue on as well as long as we can have the enrollment for them. I have a couple courses starting for the first time in the summer , manufacturing materials and processes and the concepts of lean. In the fall, I have a lot of red, this is what I'm hoping to do and this will depend on my adjunct support because I can't do this all myself. I will say, I am looking for additional help, so if you know anybody in the Central Florida area, the Osceola campus is beautiful, we have great equipment and facilities and I would be interested in talking to them. Let's look at the equipment and facilities. Equipment first, you can see on the left side, that is quite a list of equipment. I have no complaints for the resources made available to me to teach this program. We had more equipment than space. In fact, space is one of my problems and challenges going forward and we have been working on some of that and have addressed a little bit of it but it is going to continue to grow a little bit because I still have some equipment that has yet to be delivered and should be showing up sometime early summer. The building itself is called the careers in industry and technology or CIT building. It is a beautiful facility and it is almost as new as I am, I think it opened a year before I was hired, but it is a top-notch facility with some state-of-the-art teaching tools and it is a pleasure to work in that building. Looking at the inside, on the left, this is a picture of my lab. It is a fairly large lab and it is an all-purpose lab. I'm going to operate it in a reconfigurable mode very well in and out -- where we roll in and out the equipment. We have these lab benches that are equivalent to something that a student might see out in the working world if he was to go off and work in a aerospace manufacturing area or a small company manufacturing area. It is like what they are going to see in that

kind of environment. Off to the right, a picture of our Skill Boss logistics. That was delivered a few months ago. This is a great tool and I cannot wait to start using it more. I have had opportunity to work it into my fundamentals of electronics course, the week after it was received. I was coveting sensors and I was able to use this to demonstrate and show three different types of optical sensors in operation. It had a good impact and I know the students were excited to see that thing work because it doesn't show you a little bit of everything that might be going on in a distribution center. I have a couple more pictures. This is a picture of one of my students' projects from the spring. We finished that a week ago and the project was to build -- design and build and edge-lit LED lamp, and we had a 100% success rate, every student was able to build the project, assemble the thing, and show it operating. I was pleased with that and I know the students were excited about that project. It was something we weaved into the curriculum and in the end, they had to see it work and take it home, so that was cool. On the right, one of two robots that we have in our program. The goal is to integrate one of those with our Skill Boss logistics and have that be part of the projects that we might work into some of the programming. I look forward to using that more. So challenges going forward. The challenges going forward really are the course building, I have a lot of courses to build and I look forward to shifting more of those on campus. The second challenge goes along with that, our course offering. How do we phase these courses in and what do we offer when? A lot of that is going to depend on more resources that I get in terms of being able to teach them. We are limited right now but we have a good staff keeping going what we have. It is a two year program. We need to find a way eventually that we are facing these courses that allow a student to come in and move through the program in two years and graduate as expected. The campus opening in the fall is going to help a great deal with that and it is going to get better in the future semesters. I mentioned space is my -- one of my biggest problems. It is a great problem to have because I have a lot of great resources. My goal is to operate in that reconfigurable mode as long as I can find a place to put the equipment we are not using when we are not using it. I will be working with campus personnel to figure that out. The agreement itself. -- the equipment itself. You can only teach a hands-on scale if you have the equipment to do it. I don't have that problem anymore, so I think I have all of the equipment I need or at least enough equipment where I can figure out how to be purpose something for more than one reason and I am definitely going to work towards doing that. One of the other challenges I believe I have, coming from industry, I'm a big fan of application

oriented teaching and I want to influence my teaching with as much real-world examples as I can. I'm not from the automation industry so I'm hoping that I can work with others and find some examples that can influence my teaching. That industry certs is something we have heard about and it is a big thing in these areas. There are a lot of them and I'm going to be looking at the options there with the intent to work those into the program so students not only graduate with a degree, but have some certification credentials under their belt when they go out and find themselves a job. That concludes my portion of the briefing. I'm going to turn it over to James and he is going to talk about some of our lessons learned and promising practices.

Dr. McDonald: thank you. I mentioned this earlier about developing industry connections. I always realize how important that is when we are developing a new program. It was particularly relevant for this program. Since it was new to the college, not just to the college but to the state of Florida. Also, when developing the program, we recognized the work, so we borrowed from what they did. I did appreciate the value in doing our own DACUM and I would recommend that in the future. I just lost the PowerPoint presentation but one of the things I want to end with is talking about the value of hiring or faculty member, particularly if it is a new program, as early as you can. We did that with Kevin, we got lucky with the-- it was extremely important, not just for him. He needed that long runway. He needed time to get acclimated to the college. With COVID, learn for everything to be developed online. Teaching online was new to him as well, so there were a lot of issues. He needed that time to prepare, to successfully launch the program. You can see some of the other promising practices there. I'd like to give you guys some time to ask questions you might have.

>> Thank you. Thank you, James. Thank you, Kevin. We did have a kind of question, which, of course, comes often when we start thinking about these things. If you were to develop this program again, what would you have done differently?

Dr. McDonald: That's a good question. I think I probably would have maybe thought longer about how to capitalize on some resources at the college. We offer electronics engineering programming, and that program has been around for a long time. When the state developed this engineering technology degree,

over the years, our EET faculty started adding courses that would ordinarily be in the ET program. So, there was a lot of content already there. A lot of resources already there. We tried to use some of it, but some of it didn't align necessarily with what we needed to do. I think there's better coordination with that early on.

>> and-- And it's a question for James, but, Kevin, maybe you can address this as well. Did you have any challenges finding faculty qualified to teach the program?

Dr. McDonald: I found Kevin, and I'm grateful to have found him. But as far as finding adjunct faculty, that's a little bit more of a struggle. One of the issues we run into with credentialing, the academic credentials someone needs to have to teach in the program. We know that a lot of folks who work in the industry don't necessarily have a Masters degree, so there is a process for us to alternatively credential them. But finding people out there in the industry who have time to come and teach, that's really a challenge for us. Kevin, what can you add?

Kevin: I would agree. Not coming from the automation industry, it's a little tough for me to find adjunct professors that would have the right skills to come in and teach the classes for me. I do have some contacts in manufacturing from my career, and I've been reaching out to some of those, but so far have not had success. A self-serving pitch here. If anybody wants to teach in Central Florida, it's beautiful here. I'd be happy to talk to you.

Mary: I'm going to ask an associated question, because I know one of the first things you had on your list is getting industry involved. Any tips on how you were able to engage industry, how you are keeping industry engaged, outside of hiring faculty? Any tips to share?

Dr. McDonald: Get to know Steve Harrington.

Mary: [LAUGHTER] [LAUGHTER]

Dr. McDonald: I will go on and say that, really going to industry Association tradeshow is important. Targets and Walmarts and the vendors are a great resource, as Kevin alluded to earlier. Just other conferences, the high-tech conference, this conference, this symposium is a great resource as well. I believe it was at this conference several years ago, A nnette and Keith from Walmart, I

attended one of their sessions and I reached out to them after the session, got their name and number. That was incredible. Once you meet someone in person, that leads to meeting a second or third person. The conferences are really important.

Kevin: I would add to that. It is certainly a lot of resources available for these technology areas. And I look forward to when we are all back to campus everywhere, when we get together at these conferences we can talk, and learn what each of us are doing. I will throw out an invite. If anybody is in the central Florida area and wants to stop by the campus and see our facility, talk about what I'm doing, I'd love to hear about what you are doing, you have an invite from me. You would be welcome.

Mary: All right. Well, I don't see that we have any other questions right now, so I think what we will probably do is go ahead and say thank you to James and Kevin for presenting this. I think it was really helpful and, clearly, you covered things well. So, at this point, what we are going to do is take a break. We are going to come back at 20 after the hour. You have 15 minutes. When we come back, we will hear from Kevin Fleming and some other interesting information. Don't stay away. Come back. We will see you at 20 after. Thank you. ♪