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Paul: When it comes to tackling big challenges, innovative partnerships can be the key to sourcing differentiated outcomes. Earlier this year, Jacobs put the idea of radical collaboration to the test when it partnered with not one but two student teams from Virginia Tech's Consulting Group, for a three-month exercise on design thinking methodologies and processes, the students had access to Jacob's subject matter experts and professionals in the field. Whereas Jacobs had access to a team of academic researchers who could augment the company's projects with supplemental data and trends research. The project culminated with two proposals and supportive testing. Hello, this is your host Paul Thies and on this episode of If/When, I discussed the genesis and output of this fantastic program with its organizer, Timothy Berendt, Jacob's director of technology and innovation. Joining Tim and I were two of the student leaders from the Consulting Group at Virginia Tech. Project managers, Dawson Racek and Shreya Mallamula, both of whom are Virginia Tech class of 2023 seniors.

Well, Tim, Shreya, and Dawson thank you all so much for joining me today. I'm looking forward to learning more about this very interesting partnership between the Virginia Tech students group and Jacobs, and really just want to dive into the benefits of a corporate/academic partnership. Tim, I'll start with you and want to get some insight on why you started the program, how it started, what was the vision, and all that? Then Dawson, and Shreya, I'm going to ask you all to speak to us a little bit about your experience as students participating in the program, working with a big major global company, and all of that. We'll just explore what your experience was like and what other students and other companies could learn from that. Tim, let me just start with you can you tell us a little bit about the program? Like I said, how did it start? What was the vision, what were the goals, et cetera?

Tim: Sure. Thanks, Paul. Dawson, and Shreya, appreciate all your hard work and being here today. I guess stepping back a little bit I sit within, Beyond If, which is a corporate innovation function here at Jacobs. I think those are great beds for partnerships to evolve and occur and not just standard partnerships that I think a lot of corporates tend to get their hands in but differentiated ones such as academia. When I started back at Jacobs, I started positioning some different types of partnerships that we could get our hands in. One of those being academia, having some past experience and launching some with MIT and Harvard Business School, I really saw the power of the two-way street of a partnership with academics.

I think historically some of that was maybe the two-way street or the mutual benefit was a little bit lost. It felt like an internship capacity where maybe one side was getting more than the other. I think an innovation group allows for some flexibility and some growth and room for both parties to really feel that. Dawson had been interning with us, actually working with me in a lot of corporate venture capital activities, and introduced me to the Consulting Group at Virginia Tech and it was right in this wheelhouse of something I was looking to get Jacobs involved in. We started to explore how they maybe traditionally would partner with a corporate and how we might be a little different to really validate and be successful on both parties getting a little more than they typically might have and that sparked the conversation.

Paul: I think it's interesting that this was led by the innovation group, but I suspect in other entities, a lot of times maybe it's a research group or maybe just a business unit and they're just like you said, are leveraging students as free labor almost, or interns, but with an innovation group, and maybe I'm making some presumptions here, but having that onus on creative thought and thinking outside the box as it were you're looking at the fresh perspectives that students will bring with an appreciative eye. It's not exploitative, but it's what could be mutually beneficial and what could you learn from this diverse perspective? Let me ask you, Tim, share with us a little bit your thoughts on the mutual benefits to be gained from a corporate and academic partnership like this?

Tim: Well, I think one of the things, when I was talking about these traditional approaches is maybe there's a project or a task, and then it's given to these student groups and then corporate goes away and then they come back and report out. I wanted to make sure there was a lot of interactivity between both sides throughout our engagement and our partnership. I think there's a few things that come with that, is one, this should be fun. These should be cool spaces for students to stay engaged, want to be engaged in, and are excited about. Secondly, is there a different way of working that they can learn from us? One of the first things I posed to the group was, "Hey, I've been practicing design, an innovative methodology for years. I know there's a little bit of it at Virginia Tech, why don't I host a crash course into that for a few hours with the student groups."

We did this design thinking crash course which was, I think really beneficial to set the stage for the student group and with us to learn a different way to work and to think through not only this project, but their school work, or maybe even throughout their careers. Then we looked at the types of topics that could be interesting. I met with some of our strategy folks, and I said, "Hey, I know we just released our strategy. What are some holes or what are some futuristic white spaces that you might want a little more depth in?" We have this very talented student group at Virginia Tech that we're launching a partnership that that's dying to get their hands dirty in some of this, so shot those over to the group.

We were fortunate where we were able to get, I think, two teams excited. I don't think that's the norm. Usually, we'll get one, if we're lucky because you go out to bid with these teams. The projects, the topics, the way in which we were talking about working a little different than the traditional was really, I think what launched this in a different way.

Paul: Now, Shreya and Dawson, you both were the captains as it were of these two teams that Tim is mentioning. Let me start with you, Shreya, and then Dawson, I'm going to ask you the same question, but Shreya, can you tell us a little bit about what you and your team learned through this entire experience?

Shreya: Yes, definitely. I think there's so much, and so many capabilities and avenues for us to learn with, because like we'd mentioned before, Jacobs is such a large company with so many divisions within it so every turn we took, there was so much more to learn. I think the biggest thing is going back to what Tim was saying before, where since we were working with the strategic growth team, there was no barrier to where we could innovate from. I guess in the classroom, or typically with the companies that we're working with, there's a very strict set in stone like, "This is

the scope of our project, and you can only stay within these confines." Because we were working with such a large company and specifically such an innovative group within it, it really tested us to, I guess, explore the bearings of our creativity because every single time we got to a specific point, Tim would say, "Okay, now, where can you go from there? Where can you continue to innovate and ideate from there?"

I think it really taught us to go out of the box that we self-define for ourselves. Then beyond that, obviously we learned a lot about just innovation in general. None of my team had really had a lot of experience with cybersecurity and we were working on a very cybersecurity, dense project. It was really nice as a team to put all of our creative brains and all of our diverse backgrounds together to learn the different pieces of our pipeline that we were trying to construct and then learning like, "Okay, now we know that this means this and then how do we know that this means this? Then how can we put those pieces together?" It was really nice because we were all starting from stage zero but from very different perspectives. Seeing how we could meld those perspectives together, and then also ultimately learn a lot about cybersecurity along the way.

Paul: That's awesome. That's awesome. Then Dawson, same question for you, tell us a little bit about what you and your team learned through this experience?

Dawson: A lot of our team learned on how to like we push the mold? There's this mold that we-- this is even societal, this is in corporate culture, this mold that we try to fit ourselves into it it's comforting, but yet it's also at the same time we want more, but we stick with that. We looked at different innovation trends and again, we were looking at this white space that Tim was talking about that was very difficult to just pinpoint, you couldn't really pinpoint it, you couldn't really find it, you couldn't touch down on one area and that was difficult for some of the team members because they wanted to fit into this mold, they wanted to.

Our organization worked, it really helped our organization understand innovation because we have this set project, the set mold that we're able to go through with each and every project. It broke that down, we were like, "Hey, this is not our typical project. This is not the typical consulting that we work with." Our team learned a lot of pivoting like Shreya was talking about, figuring out, "Hey, it's okay to leave this space and hold this a little loosely." We're going to hold this loosely, and then see what other leaps and bounds are in this other sector of the market or this other emerging trend because we looked at different emerging trends and technologies. That was something that was really beneficial for a lot of our engineers to learn, especially understanding this holding things loosely, idea.

Paul: That's awesome. I think you and Shreya both you really talk on some of the principles of innovation that it takes a lot of time it takes corporations a long time to really embrace that. I think students and professionals alike, a lot of times, we like to have clearly defined parameters for performance. It's like, tell me what my goal is. I can really focus on that. Dawson, I like that like you're saying kind of hold loosely, it's giving yourself permission not to have all the answers, that you can set something aside for a moment to continue exploring, and Shreya, you touched on that as well. It's that ability to continue to push the space, continue to learn, continue to innovate, as Tim was saying to you.

Now, I suspect y'all have worked with other companies as well. Can you tell us a little bit, what the experience was like partnering with a major corporation, where you're at in your career development stuff? Obviously, you're students at the tail end of your undergraduate work but still, what was it like for you, as students to partner with a major corporation? Shreya, let me start with you.

Shreya: Yes, definitely. I guess like you had mentioned, majority of our partnerships, specifically within the Consulting Group in the past had been with smaller, more local companies. Speaking to my personal experience, this is my second time being a project manager. The prior semester, when I was a project manager, it was for a much smaller, more local to our college company that had already known the ins and outs of Virginia Tech, the Consulting Group, it wasn't that new of a partnership if that makes sense. When I was working with that company, whenever we had a problem that we didn't necessarily know the answer to, instead of looking within the company, we had to look elsewhere to find that solution.

I guess the biggest difference that we had is because Jacobs is such a large company. We were only really directly working with such a small portion of it. Whenever I came to Tim and was like, "Oh, we were confused as to how to explore avenues X, Y, and Z." He would always be like, "Okay, if you are still confused about this in a day, I can find someone to help you with that." We did actually take him up on that a couple of times to work with other engineers within Jacobs to get a better perspective of what they exactly wanted us to do.

I think going back to what you said before, even though it's difficult, especially as a project manager, when you don't have the set of guidelines that you need to accomplish, it was really nice working with Jacobs because they had so many people that could help guide you to reach whatever abstract guidelines you had set in place.

Then also with that, I always say there's so many small things that you never realized when you're working with such a large corporation, for example, scheduling, since Jacobs is a global company, there are so many different time zones and people that are working on such busy schedules. I've never even experienced having trouble with scheduling before. Now when we're working on scheduling with 10 different time zones, obviously, these are super trivial things, but they just really open your perspective to how large of a corporation Jacobs really is, and how much of a global significance they have.

Paul: I think it gives you some appreciation of some of the operational challenges that companies have to go through to be able to move things forward. They're necessary evils. Right. Like you said, people are 10 different time zones and scheduling and stuff. In the grand scheme of things, it's not like a huge problem, but it compounds, the challenge of what you're trying to work through, and then highlighting the benefits of networking, right. I will share, my own career, every time I have changed jobs, that's always been I think, probably the number one thing is always trying to find out who does what, right. That's like half your battle for whatever corporate challenge you're trying to overcome is just knowing who in the organization does what it is, or can help you do what it is you're trying to do. Dawson, let me ask you, share with us a little bit about your experience, what it's been like partnering with a global company like Jacobs?

Dawson: Yes. [chuckles] **[unintelligible 00:15:00]**, Paul, especially being at Jacobs first year, it's like, I really want to accomplish this or push this initiative, who do I need and where can I find them? That's something I think is very difficult that Tim was very, very helpful throughout the project because as a PM, it's pretty easy to get lost. You're this middleman, you're trying to help your team push their initiatives, you're trying to help the team also grow, but also keep that relationship with the corporation healthy, and it can get difficult, but Tim made that very easy.

Also, it helps working with Jacobs before, knowing how things run around Jacobs, it was really fun. I emphasized a lot of the things Shreya said, scheduling is always difficult, especially with students. Figuring that out, was something until to understand, time is precious, time is something that can't really get rid of. As a team, we had to look at different ways of working around, we couldn't just do the simple one-hour meeting a week, we had to look and even think of different ways that we could work together as a team and with the teams at Jacobs, similarly, as Shreya has said, talking to different engineers, about topics.

Tim: I want to take the credit there, Paul, but I really kudos to the Jacobs employees, who were willing to help. I sometimes was sending emails to folks I hadn't met or connected with telling them about this partnership and relationship and they were very quick to respond and/or take a call with the team members here and credit to them that they got their hands really dirty and in the weeds of some complex topics, that are complex for us as an organization. You can imagine some talented undergrads getting into those topics as well. They certainly had good questions, and then the right questions. I think that that was exciting for some of the Jacobs employees just to be talking about outside of their day-to-day.

Paul: Yes, and that's great, Tim that you highlight that, because, you think about how busy you get during your day and obviously with engineers, and they're on projects and their billable hours to clients, and all of that, they've got a lot going on, but for them to still say, "Hey, this is important. We're going to carve out time, I'm going to give back, we're going to mentor, we're going to help. We're going to help the next generation of engineers and professionals and they see the value of a program like this. Absolutely right, highlighting that ability or that willingness to give back. Now, Tim, let me ask you, for other organizations out there, who look at this, or maybe they have something similar, maybe it's working great. Maybe it's not? Or, maybe they haven't stood something like this up yet, can you share a few thoughts on like, what it takes or what to be mindful of when trying to stand up an academic corporate partnership like this?

Tim: It just takes one yes, really. I think there's hesitancy at first, it's different. In innovation, Dawson was talking about, "Hey, wait, this isn't of the norm." It usually isn't. There shouldn't be some discomfort, there should be some, what is this? How's it going to work? Some risks, some not knowing how it would happen. I think from a corporate perspective, just getting out there and connecting with some folks who I think are similar-minded, and "Hey, we want to explore something." Maybe it's an avenue for internships, or maybe it's an avenue for collaboration, or maybe it's community work even. That's the perspective there. Then from an academic, I think it's twofold is one it can either be created and be a catalyst within a department with department heads or students. I've seen student groups say, "Hey, we want to work with some organizations. Well, how do we go about that?" These conversations are

more common than you think. I think it's just about putting your foot on the ground and making it happen and taking some leaps. It's real easy to drag your feet once you get the idea. Maybe sit down for a few hours with both groups, figure it out, go through the processes that you have to do through these types of relationships. Those can be done pretty quickly, and then you get into the fun stuff.

Paul: Then finally, Dawson and Shreya want to ask y'all, how you feel a project like this or projects like this prepare you for professional life after college and Dawson let me start with you. What are your thoughts? How is this experience getting you ready for the next stage in your career?

Dawson: Yes, it really excites me, and I wanted to talk about this earlier but I'm glad I held off just because talking about what does it look in a corporate culture? What does it look like when you go into the workplace after college? I'll pivot real quick. A lot of the team members were really excited to join this project. Shreya's and I's project was the number one requested project in our organization. Everyone was really wanting to join a corporation but like I was talking about earlier because some of them wanted to see what corporate was like but most of them already knew.

Most of them wanted to name brand attached and I think working within an innovation department broke down those barriers, the understanding of what does corporate culture look like? What does an innovation department look like? For a lot of our engineers, they just want to fit into their mold going through college and that's great but some of them are figuring out hey maybe engineering's not--

I know someone on my team who's a chemical engineer. He's now not going to be a chemical engineer. He's going to want to try to pursue innovation in some way. It's just exciting to see how companies are addressing their innovation demands and addressing this corporate culture almost. That's very attractive for students and attractive for some of my project students.

Paul: That's awesome. What you picked up, whether or not you end up at Jacobs or some other company, it's equipped you with that context and that mindset to be able to problem solve and really tackle those challenges in a way that maybe you hadn't before you'd had the experience that innovation context. Then Shreya, the same question for you, how do you feel that this project and this experience prepared you for professional life after college?

Shreya: I think working on the bare bones there like we mentioned before obviously in the classroom you always get very defined guidelines of things that you're trying to accomplish, how you're trying to get there. Specifically working as a project manager on this project, I think like Dawson mentioned when you're working as the middle man, it gave me a really unique perspective in trying to contextualize the information that I was given. Then I guess put it in a digestible format before I presented it to my team.

Working as the middle man there trying to really understand information and then relay it effectively was really a valuable skill for me to pick up on. I think my team saw something very similar to what Dawson was saying. I think the problem with being a student specifically in engineering, I'm personally an engineer, seven out of

eight of the people on my team were also engineers. I think the biggest difficulty there is a lot of the stuff that we do in the classroom.

Learning physics is not the exact same thing as applying physics if that makes sense. We saw that disconnect with a lot of different things and there was actually a mechanical engineer on my team who had seen the same thing that Dawson had mentioned where he really liked being a mechanical engineering student but when being asked to apply his mechanical engineering skills in this context, he realized that perhaps mechanical engineering as an actual engineer wasn't the job perspective that he wanted to take. If that makes sense.

It helped us put that disconnect together to meld that gap between what you do in the classroom and what you're actually going to do in the industry and give us an insight into that, so pull back that curtain earlier on. Now that student actually has time to pivot and find A, he's actually industrial designs. He realized that he likes the design perspective of it more than the actual computational aspect of engineering. It gives him time now to make that pivot before he actually has to go into the industry.

Paul: That's wonderful. I can see the value of that of being able to make that pivot while you're still a student rather than once you're out in the workforce and you've taken a job and then you realize, I really don't like this job or this is not the career path I wanted to follow. Being able to have that knowledge beforehand, I could see how that really positions you well for success. Tim just final thoughts. You're one of our innovation experts here at Jacobs, deeply embedded in our Beyond If team innovation partner. Any final thoughts on the value of innovation in this context and this partnership and just any words of wisdom for our listeners out there?

Tim: I think the term that keeps coming to mind that really makes innovation hum is radical collaboration. I think that this embodied that in terms of not only just the partnership overall but we mentioned engineers but there were various engineers as well as other undergrads on these teams that really helped make this a radical collaboration because that's where the heart and soul of innovation thought and design comes from. To be able to get folks like this group in a room, varied backgrounds, locations, et cetera, ideas of what they thought working with a corporation would be like and flipping that on its head, I think is really valuable.

We wouldn't be an innovation group if we hadn't already chatted about how we can evolve this type of partnership and other partnerships and started launching some of those conversations internally with folks who had heard about it. We can keep spreading the word and I hope this builds into a program that Beyond If and Jacobs can expand because there's just a ton of value in it and there's a ton of fun to be had in it, especially with the types of spaces that we can work in.

Paul: Oh, that's awesome. I could see too this even expanding out into client services too to where it's like this group does some collaboration let's say or a different team or whatnot collaborates with a client to solve a client challenge. Then that exposes the students to other organizations as well. Really picking that radical collaboration up and even further.

Tim: That's definitely a dream of the evolution of this for sure.

Paul: Oh, absolutely. Tim, Dawson, and Shreya, thank you so much for your time today. Congratulations on a successful program. Dawson and Shreya, good luck with finishing your studies and moving on to the next stage of your career. Tim, thank you so much for your vision and for putting this together. Thank you, everybody.

Tim: Thank you, Paul.

Dawson: Thank you, Paul.

Shreya: Thank you.

Tim: Shreya and Dawson, appreciate all our work.

[music]

[00:26:56] [END OF AUDIO]