The Construction User 2.0
Episode 23: Innovation and ConTech - a conversation with Brianne Stewart and Matt Hedke

Kirk: Today is going to be a special one. We have two guests instead of our standard one, but it's going to prove to be a very interesting conversation about innovation and construction technology.

Our first is Brianne Stewart, a group project manager at Milwaukee Tool, with a decade of experience in improving technologies. She remains on the cutting edge of construction and job site technology. Our other is Matt Hedkey. He's the director of VDC Solutions at Barton Malow. After working in construction management for over 20 years, Matt knows the importance of innovation and how to make sure it takes hold on your teams.

Please help me welcome Brianne and Matt. Welcome, Brianne and Matt. And thank you both for being here today.

Brianne: Thank you for having us.

Matt: Thanks, Kirk. Appreciate it.

Kirk: I always try to start this off on a more interesting and funny note. I have to ask. Brianne, what is the last song you had stuck in your head?

Brianne: I have two little kids, so I think they tend to dictate what music we listen to in the car.

Kirk: It's a cruel world, yes.

Brianne: My four-year-old is pretty obsessed with, Can I Kick It? by A Tribe Called Quest. That is on repeat every time we are in the car.

Kirk: It could be worse, I suppose.

Brianne: It actually gets stuck in your head.

Kirk: Okay, and how about you, Matt? What is the song? What is the earworm of the week?

Matt: Both of my boys play travel baseball, and we just kicked off indoor training this year. My cousin's son has a band called The Tryhard Society. There's a song called Swing for the Fences that he sings, and the boys on the way to baseball are constantly asking me to rock that out, so I would go with that one.

Kirk: Okay. Good answers. I have yet had a bad answer. I've had some answers that were more surprising than others, but that's my favorite question because you learn a lot. I get the 'we have young kids' a lot, I had Let It Go stuck in my head for two years. I have four daughters, so it was a thing.

Tell me a little bit about how you guys became associated with TAUC, and how we all came to be associated in the association.

Matt: I guess I can start. Barton Malow has been involved with TAUC for a number of years. Our Chief Operating Officer, Chuck Binkowski, has been ingrained for many, many years in TAUC, and he approached me years ago, a couple of years ago now, I guess three or four, and said they're going to be starting this innovation and tech committee.

I was more or less told to come and join, learn more about TAUC, and focus on innovation and tech. That's how I got involved in TAUC, and it's been just networking, learning the people, and learning what TAUC does ever since.

Kirk: How about you, Brianne?

Brianne: On my side, Milwaukee Tools is a premier sponsor with TAUC, so we're involved in multiple facets. Personally, I'm also involved in the tech and innovation committee. That's where I had the chance to meet the guys and help drive some of the annual initiatives as we got the committee up and going three years ago now, I think.

It's crazy to think back. It was actually the middle of COVID, so everything was virtual. My first call I had with Matt, both of our kids were doing Zoom school off-screen on the floor of our offices.

Kirk: That's actually interesting that the innovation and tech committee would start virtually. Seems very on point, very apropos that the innovation committee would start in a virtual environment.

Matt: That's right. We got to act on what we're talking about here and leverage the technology to get the job done. Very interesting indeed.

Kirk: Obviously, a lot is being done in the construction to push the industry forward. This group was involved in one such project centered on job site connectivity. Can you tell me more about that project and the innovation?

Brianne: When we met as a committee, we started talking about some of the common pain points we had with technology. What was really interesting is no matter the technology different parties were trying to enable, it all came down to connectivity on the job site. You can't really make a software app or a connected device work well if you don't have some connectivity to the cloud.

That's where we arrived upon connectivity as our focus area because it was something that was a pain point felt universally across all of the TAUC users. There was a benefit to going after solutions in the space as a group, so we can share best learnings. We can work more proactively with the big providers in the field. Ultimately, we're able to have a pilot with some connectivity partners, several of the contractors that are part of the tech committee on a connectivity solution.

Matt: As we started to gain trust and network within the committee, I think what was interesting for me is that sometimes you don't realize that your company's particular problems are shared. The more that we had conversation around it, the more we realized that, hey, all of us are in the same boat.

As Brianne mentioned, we all need connectivity on the job site to a variety of different degrees. The more that we got to know each other and talk through the challenges, everybody was sharing a lot of the same pain points. What better of a space to not just point out the problems but figure out solutions? I think it's just a really good example of the power of this committee and what we try to do every time we meet and discuss a topic.

Kirk: I actually have two different follow-ups for that. What's very interesting is what certainly didn't occur to me until I started talking to a lot of people on different job sites is that you always have a cell signal. But a lot of these job sites are out in a little bit more distant areas.

When innovators are innovating and building devices, they're like, well, whatever. Everywhere has Wi-Fi. But we're working in an oil field and that doesn't. Talk to me a little bit more about those pain points, and without going too nerd-tastic, how we're solving some of those problems.

Matt: I think to your point, it depends on where you are and what level of a problem it is. I'll give you a brief example through the lens of Barton Malow. We're building a multi-story building in downtown Detroit. You would think connectivity would be great. You're in the middle of a major city. You get 3–4 stories in the ground, not so much. So again, until you're in that situation, you don't realize the problem.

Conversely, if you go out to the middle—to your point, we do a lot of solar farms, wind farms, things like that that are more in a rural environment—and you would think that, hey, I should have cell service out there, but sometimes—we use Verizon at Barton Malow—you get in the middle of rural America and Verizon isn't a great provider in that particular area, or AT&T may be a better provider. You're constantly being challenged with different problems you're trying to solve.

I think it's through those experiences and through the conversations where you start to understand not only things like cell service, but how do you push Wi-Fi across the project? If you're pushing Wi-Fi from a centralized place on a project site, how far is it reaching? Are you

thinking about that site that's a couple of hundred acres? Are you getting it way out to them that are maybe on the far end of the project? Or, can they get what they need via cell service?

Brianne: One thing to note that was interesting working through everybody's different experiences is how many very creative workarounds people were finding to make up for a lack of connectivity as we were throwing more and more technology and the needs for real-time communication at the job site.

To Matt's point of a highly dense urban environment, there was a contractor that we met who would string together MiFIs, and put them down the elevator shaft to have Wi-Fi on each floor.

Kirk: I really love creative people. I really do love creative people because that is the best bad idea ever. I mean, it probably worked okay, but it's certainly not how that product was intended.

Brianne: And that's where I think we saw it's a really good solution for us to try to solve when you have so many workarounds. In rural areas, they were depending on people working overtime or working at night in their hotel room, going back offline during the day and going back at the end of day and uploading RFIs, change requests for the prints. There were a lot of problems, but some of the solutions we were able to put out there were universal.

Even just better planning and how to work together better with the owners, the general contractor and the subcontractors to address this early on, so you don't have to get to the point where everybody is trying to do their own workarounds.

Kirk: Brianne, you actually bring up an interesting point. You're coming at this obviously from a fairly different perspective. Matt, you are trying to build a building, but Brianne, Milwaukee Tool is trying to not just facilitate that, but come up with new, innovative solutions that would require Matt to have connectivity. You're coming at it from a very different approach path that informs your own innovation. Can you talk a little bit about that?

Brianne: Absolutely. We keep creating more and more connected products, and it's essential to our users that they know where their tools are, if they're paying to have one key in their products. They want to be able to find a tool if it's lost, or use a geofence to understand if the tool is on the job site or not. If the connectivity isn't there, then our solution doesn't work as well as we would like for the user.

Part of this started from researching the connectivity trends in the industry, just understanding where they're going, can we continue to count on the Bluetooth cellular network, and what are the trends in the job site?

As I was researching, our end users would tell me about their problems and their solutions, but then the final question was always like, what is everybody else doing? How are they fixing this? That's why it was a good problem for the tech committee to take on. It was an opportunity to

share what the solutions are, so that all the connected products that we as providers are putting on the job site work better.

Kirk: That's actually a perfect segue into my next thing. You're both on this innovation and tech committee, along with many other people from similar companies of different sizes. Talk to me a little bit about creating positive momentum and, I don't want to call it groupthink but that collaborative process of a bunch of people sharing those war stories.

Matt: I think it's interesting. As we have these committee meetings, one of my favorite parts that we do is just a quick update where we go around the horn and everybody has a couple of minutes to talk about what their company's focused on. There are certainly common themes in there that we hear time after time.

We just spent time talking about job site connectivity. There are a lot of common threads in there that we can all not only hear what other people are doing, but just reassure ourselves that maybe some of the things that we're focusing on and trying to solve, other people are out there struggling and trying to solve as well.

Then through the relationships that we're building in there, whether it's a brief conversation in person, taking it offline, just to use the committee as a sound board and share information, because what you started with, Kirk, we're wanting to push the industry forward as a whole.

We need all facets of builders, tool providers, subcontractors, owners and all of the above. We all need to work together to push through that together. I think that networking piece and having that opportunity to talk about those problems is really, really powerful.

Brianne: Absolutely. I think the sense of community and common purpose that we have on the tech committee and throughout the broader TAUC organization is really valuable. You know that you're not the only one dealing with these problems, and you have a peer group that you can go to and ask questions.

You meet three times a year in person and that's a great way to connect and learn about each other, but I also know I can reach out to any of these guys throughout the year if I have questions on hey, have you seen this? Or what do you think about this? I need somebody that can pilot this new tech for me. Who's willing to raise their hand and give me input? This is a great group for that.

Matt: And I think, to Brianne's point, I was in preparation for our conversation today. I thought back on, I bet you, somewhere in the neighborhood of 20 times in the last couple of years, there's been a chain of email where somebody brings up a question, attack, or a problem, and we all chime in on it, kind of off-cycle of our normal meetings.

Again, to Brianne's point, there are a lot of really positive relationships that we're building. I think we're all in the same boat trying to figure out how to solve them, and not only make our companies better but make the industry better.

Kirk: I have two follow-ups to that again. First, I think that everyone agrees on job site connectivity. But is there anyone from the owners through the tool providers to the contractors? Is there anyone in the chain who thinks that's not important, just make it work? Is there anyone who's not on the side of figuring this out? I can't imagine anyone being like, why would we need that?

Matt: I don't think there's anybody that disagrees. When you start to pull in the owners as an example, it's understanding, hey, when the project is complete, what are their needs, wants, and desires? Is there an opportunity to join the two together versus having them be very separate?

We'll go in and establish some connectivity during the construction process, then we go away, and then they're going to have somebody come in and create connectivity for their facility. I think, again, through these conversations and as we learn more, we can figure out better ways to connect it to, which I think is really powerful. Those are efficiencies that I think otherwise wouldn't have been realized if we didn't talk about it.

Brianne: I think it's always been acknowledged as a general pain point that everybody experiences, but the incentive for any single party to solve it, or the ecosystem from owners to subcontractors and tool providers wasn't there.

So, again, having the voice of TAUC and being able to go to connectivity providers, like the leading cellular carriers, or to our new partner, Graber. They're experts in the field and they're able to help navigate some of these barriers, like security and access control that have stopped any individual user in this group from solving it themselves.

Security is definitely a major concern for connectivity, and you don't want to be the reason that there's a breach that impacts the owners or the rest of the contractors on site.

KirK: We talked about it before the call, but we have our State of the Union of Construction coming up just in a few weeks, and we actually have a panel of cybersecurity and ransomware experts that are going to be talking to us about how job site connectivity, good security of that, because we don't always think about that, either. It's something you can hit pretty hard, and if we're not being both connected and protected, then we can get into trouble, so that's definitely something to keep in mind.

One follow-up to that. You mentioned how everyone's having these same problems. Talk to me a little bit about the discovery of someone who has experienced a use case you hadn't yet, and if that has been able to inform decisions of, the early warning signs. Has it helped you broaden

your view of things that you maybe hadn't experienced personally, but let you see other things are happening or other use cases broadening?

Brianne: I think as a supplier to the industry, sometimes it's hard to remember how poor the connectivity can be on the job site, making sure that we're designing our app and our tools to be resilient within the environment as it is while we're trying to improve the total connectivity, was an eye opener for me.

You know it's a problem until you talk to contractors that are struggling with this daily and it's adding extra work to the end of their day. It shows how much more impact it's having than I think I realize going in.

Kirk: In these innovative, collaborative environments where you're talking about use cases and case studies for things like job site connectivity or any innovative issue, has there been opportunities for you to see things that you hadn't seen on your own job sites, learn new things and better prepare for potential future problems that other people are currently having?

Brianne: Maybe just balancing?

Matt: I think yes. Brianne and I have talked about the collaborative nature of this committee. As you start to understand what people's number one pain point is or how they're trying to solve something, and you start to learn more about it, I think if I thought about it enough, you realize that, hey, maybe it was (as an example) a number 1 to somebody else and it's a 10 for us.

Then you start to understand more about the problem and you think, okay, maybe it's not 10, maybe it's a 4 or 5. Or you understand the problem a little bit more based on the conversation, and they're talking about some solutions that maybe you weren't aware of.

Then you can take back to your organization and say, hey, being a part of TAUC and being a part of this committee, one of the things that I find the most value in is exactly that. Going back to our organization and sharing, whether it's new solutions and innovation, or just how other people are solving problems, there's just a ton of value in that.

I look at our projects and our business through the lens of VDC, but I've learned a ton from a variety of different people. It's not just VDC people that are on the committee. We have project managers. We have people that are overseeing IT. We have VDC people. We have tool people. There's such a diverse group of people that bring a variety of different perspectives that I think is really, really powerful.

Kirk: That's awesome. That's really cool to hear that.

Brianne: I know one thing that I've been noticing, especially more so over the past year is the conversations around being more proactive with predicting safety risks. It's been interesting to

hear everyone compare ideas and solutions, how we try to move more to the forefront and look at people's health, and how we are maintaining health so that we have a safer job site.

There are multiple solutions out there in the market, but they're fairly new, so hearing the conversation and the knowledge share around that space has been interesting.

Kirk: That is interesting. You actually touched on something that I wanted to move to next. You guys are not just in the innovation and tech committee, but you're both in the innovation and tech world in your respective fields. You're both on the leading edge of construction innovation. Where should I buy my stocks? What's next? What's coming down the line? If we had our crystal ball, what are we predicting?

Matt: I can start out and, hey, I don't think it's new to anybody. AI is a big one. Just a ton of information. I think all of us are scratching our heads trying to figure out how we apply it to our business, what it means, and what is the security risk behind it. We could spend a whole hour talking about that topic.

Kirk: We absolutely could, yeah.

Matt: Data management is another one. We have all this data available. How are we leveraging it? That's another topic that is often talked about not only within Barton Malow but within the industry.

Digital twins, that's another one that I think gets brought up, people have a lot of interest in, scratch your head and ask yourself, well, what does that really mean? Are we talking about a digital twin during construction? Are we talking more about facility maintenance? What does that flow of information look like? Is it dependent on our clients, their needs, and their wants?

That's my top three (I think) that are probably the highest in the industry right now. I'm sure Brianne has a few that she could add to as well.

Brianne: Building on what Matt said, there is just a rapid acceleration of tech available in the industry. Some of that is foundational tech, like digitized data, cloud-based solutions that are opening up opportunities for us to not just capture data but try to use it in a better way. I think that's what I'm the most excited about.

We're still, in many ways, just inundated with data and it's hard to make sense of it. But with technologies like machine learning and other analysis tools, we can use our data to be smarter about how we run our job sites, how we predict safety risks, and how we reduce uncertainty in scheduling and project execution.

I think not just having these tools, but being better at applying them to construction in a way that helps the job site run more efficiently is what I'm the most excited about.

Kirk: I like that. This next question is hard to ask because it's hard to codify even what I mean. New innovation, introducing a new piece of equipment or new technology, the depreciation cycle of that is a year or two or three. The learning curve can be one or two or three. Technology is moving so fast that 3 years later, we're 7, 8, 12 generations later.

How do we adapt and adopt new technologies without being completely outpaced by the technology itself? How are we preparing for that, both from a Milwaukee Tool preparation standpoint and a construction management standpoint?

Matt: I can take a first stab at that.

Brianne: Go for it. That's a big one.

Kirk: Like I said, this is hard. We could talk for three days on this.

Matt: The best way that I would answer that—I'm certain what I'm about to say is not perfect—is creating a process for innovation. What I mean by that is, what we've done over the last 12 months at Barton Malow is, to your point, there's so much influx of technology—whether it's software, hardware, whatever it might be—that's getting pushed into our industry. It's a lot to take in. You scratch your head sometimes and ask yourself, what should I be focused on? How do I prioritize it?

I think where we've landed as an enterprise at Barton Malow really is just like, hey, we need to have an enterprise innovation strategy and a process to how we bring in and we learn about new technology, how do we vet it out, how do we get buy-in from end users, how do we get buy-in from executives, to then go and test it. And then ask ourselves once we piloted it and tested it, how do we scale it, or should we not scale it. It's that mentality of having a process and essentially failing faster scale it.

I guess time will tell, and I'm sure we'll continuously improve on that innovation process, but I think it starts with just having that overall process in place so that you can make sure that you're doing your due diligence, to make sure that what you're testing and implementing makes sense.

Kirk: Fail faster- scale it. I really like that. That's a really cool way of saying that. How about you, Brianne?

Brianne: I can hear everything Matt was saying, having a process that is standalone beyond the specific technology that you're adopting helps align your team, and make sure that your resources are being used in the best way.

The thing I'd add on top of that is maintaining the vision of why you're using technology is just as important as the technology that you pick in the construction industry. We're all here because

we want to build a better world. We want to support our employees, the people out in the world that are going to be living/working in the buildings, and the infrastructure we're creating.

Looking at it through a lens of why are we here and how can technology support that helps guide better decisions, and keep a focus on what technologies you're going after.

At Milwaukee, we're not using machine learning just because we want to pat ourselves on the back that we're technologists. We use technologies like machine learning, electronics, lithium ion to give a better solution to the user; it always starts there. Then we back into what technology we use and how we're going to implement it.

Kirk: I like it. That's great. Had an opportunity to go tour your innovation labs up in Milwaukee. I'll say I got to see that firsthand and it was truly incredible. I'd never seen anything quite like that before. It was amazing. I was really grateful to get to be able to see that. You practice what you preach. I saw it.

Brianne: Yes, the focus on the user sounds pretty cliché, but it is something we do through day-to-day, and it's how we've been able to maintain focus as we've grown. We have a lot of highly motivated, very talented employees that if we didn't keep that vision, we'd be off in a million directions.

Kirk: Well, unless either of you have anything else you just want to add and get out there, like we didn't get to cover this or talk about it, that is what I have for today. Thank you both so much for joining us and talking about innovation and tech.

Brianne: Thank you, Kirk, for having us.

Matt: Thanks, Kirk, for having us. Appreciate it.

Kirk: Awesome. Brianne, this you can't see it really well. That's my Milwaukee hard hat that I got when I came up there, my TAUC Milwaukee, like the new strap-on Alpine style that I have on my position [...]. You can't see it on Zoom as well as you can when you're walking in the office, but it's right there.

Brianne: I like it.

Matt: Mine's right here. I got mine, too. I'm going to have to line it on top of the deer head.

Brianne: I don't actually have mine now. I gave it away. It's a good reminder I need a new helmet.