Season 3 Episode 3 of the InfraTalk Podcast:
HaulHub: The Next Generation EDOT Platform

Greg Nadeau:

Welcome to InfraTalk America, Matt and Houston. And can I begin by just asking you, and full disclosure, I have a business relationship with HaulHub Technologies, which has been one very rewarding in terms of the experience I've gathered, working with, with your extraordinary team and your extraordinary CEO, Joe Spinelli. So, and we're going to talk about e-DOT and what that means to HaulHub Technologies and really the future of digital technology. And we had termed one of our E-ticketing videos 'E-ticketing The Gateway to Next Generation e-Construction'. And what I understand EDOT to represent is essentially that journey the next generation e-construction. And so, with that sort of build-up, why don't you start Matthew talking to us about HaulHub Technologies and how this journey began?

Matthew Valle:

Indeed. Well, it all goes back several years ago to the need to help modernize construction and take paper out of the system. Really, the impetus for a lot of this was EDC-6 and the focus on electronic ticketing and digital as builts. And we started working with general contractors out in the field and they had their owners saying we need to think about ways to take the paper out of the process that go along with loads of hot mix asphalt, aggregates and ready mixed concrete and think about how we can get this information that's already digital in a digital format and basically disintermediate the paper process.

And so, we started working with our general contractor clients to help solve this problem and got some discussions going with the Federal Highway folks, got involved with some of the peer exchanges and really started to take off very, very exponentially and, you know, partnered with some phenomenal DOT's, Delaware DOT, very innovative small state but they can move very, very quickly on a lot of these transformations.

And so worked very closely with those folks to roll out electronic ticketing. And then it really exploded from there. And, you know, once one state goes and shows the power of the innovation other states want to follow, and there's a common nomenclature about R&D in the DOT space. And it doesn't mean necessarily research and development. It's rip off and duplicate.

Greg Nadeau:

And be proud of that.

Matthew Valle:

And be proud of that. Yeah. So, you know, Delaware set set the bar high and other dots, you know, followed in the footsteps. And Houston has been working with the Delaware folks for a number of years now. And just they're sort of innovation and the sort of the work with Delaware has led to a lot of these other innovations that lay the foundation for the e-DOT framework.

And Houston, what are some of the, you know, things that Delaware is working on and work towards to help inform a lot of that? The EDOT sort of platform?

Houston Merck:

Yeah, definitely. I think it all started at the plant. We kind of kicked things off with E-ticketing and that's where it really jumped in to the EDOT. There's so much information, there's so much data out there, there's so many different machines that are out there on the job site.

And that's what we're working through right now with Delaware, is how do we start to pull in insights, pull in information from these machines, from these other sources that are out there to make life on the job site easier? How do we make it quicker? How do we make it more efficient? It's constantly innovating, constantly trying to pull in new resources.

There's so many resources out there that have never been tapped and there have been touched. And that's really what we're trying to do, is leverage that and bring that back out.

Greg Nadeau:

Three years ago, when I first became affiliated with HaulHub, it was in the context of a conversation as to how you advance technology under the Federal Aid Highway program with state DOT's.

And there are a number of ways certainly to do that. But what I began to learn, what E-ticketing meant, what it what it would result in and frankly, this was after serving, you know, 15 years, both at the state and federal level, helping to run the main DOT and the Federal Highway Administration. But I was completely ignorant of e-ticketing and put in what it meant until I met you guys.

And it's extraordinary. EDC-6 and EDC for our listeners is Every Day Counts and six represents the round of innovation implementation initiatives. So that means 12 years of effort thus far. And we're now federal highways now launch EDC-7. So this is a partnership. It's basically the everyday kind of partnership with the states. It's Federal Highway that funds and leads it and drives it and states that are essential to it because obviously they're on the receiving end, but the states are really adopting, deciding, evaluating which initiatives to adopt, what makes sense for them.

So it's very much dictated and governed by state. DOT decision making. So when EDC six was launched, it included an initiative on digital, including E-ticketing and what they call digital as builts, the overall BIM for infrastructure, open BIM. There's a lot of terms that don't make sense to a lot of people, but fundamentally it's digital project delivery. It's digital tools that will be used to advance and accelerate efficiency and project delivery and in a whole conversation for another time.

But E-ticketing is relevant to this conversation because 43 states a record for Every Day Counts adopted this initiative and your company has been involved with a key technology that has really helped catalyze that. So there are scores of states who have made the commitment, who have essentially arranged to have the technology that they need to essentially receive data.

And it's all about the data at the end of the day. So that's why, you know, 'e-ticketing gateway to next generation construction', because that data used to be lost their paper tickets. In an interview I said, you know, paper tickets are where data go to die. The data is extraordinarily valuable. So talk to us about what it means.

And really, you're picking it up from that gateway. You've been through the gateway and that has opened the door to a lot of other possibilities. What impact will that have on state DOTs and explain your EDOT initiative?

Matthew Valle:

Yeah, for sure. So, so really E-ticketing is sort of that foundation like you mentioned, right? It helps to get the scale mechanism out across the U.S. at this point.

I think there's 3000 plus plants that are connected across the aggregates, asphalt and ready mix side of things. There is, I think, you know, 75 million tickets a year that are being delivered electronically across the U.S. And so that sets a really nice platform for building components on top of that. So when we think about, you know, some of the key challenges that our transportation infrastructure faces with regards to the safety, with regards to environment, and then delivering these projects more effectively, it sets a great mechanism to help tie a lot of these different pieces together.

So as Houston was talking about, you know, we're starting to do work with the big OEM equipment manufacturers, so Caterpillar and John Deere, to start tying in the equipment that's out on the job site into sort of the materials that are being delivered electronically. So what this then enables is taking sort of this digital as built piece really to the next level.

But before we get there, we can start to bring these connected equipment devices in as basically smart devices out on job sites to basically help inform, you know, where active work zones are that will then enable, you know, Google and Waze and Apple Maps to see, okay, we've got an active work zone on the job site. And this is just basically with technology that's

already existing, just thinking about the data in a different way and using that data to inform disparate systems that are that are getting set up.

So phenomenal opportunity there. And that's really what the EDOT platform is about, is tying in public private sector together to use this data in ways that help you build projects safer, more sustainably, and in a in a more effective manner with the digital tools. And, you know, this E-ticketing sets a nice framework and foundation for a lot of these environmental challenges and quantifying what CO2 emissions for a project over the whole lifecycle of that project looks like.

So when we think about construction materials, we've got, like I said, 75 million tickets across the U.S. You can start to tie those into this burgeoning network of EPDs that are getting set up. So EPDs are basically environmental product declarations, basically a nutrition label for construction materials getting placed down on the job site. So, you know, the CO2 emissions from that particular load of asphalt that's getting placed there can start to tie that into the ticket, get some real time insights into what the CO2 emissions are.

And so, you know, within IIAG and within the Inflation Reduction Act, there is some funding for DOTs to help push there supply chain in this direction. And so there's this whole like digital ecosystem getting set up to help inform owners on, you know, what that what the CO2 emissions are of the projects. And so not just are able to capture the materials that are going down on the job site.

You can start to as we bring the equipment in, you're start to get a better sense of what the CO2 emissions are of the placement of that material as well. So you get a holistic view of CO2 emissions on the the entire project, which is very, very powerful.

Greg Nadeau:

And environmental product declarations are an EDC-7 initiative, to the industry.

Matthew Valle:

100% yes.

Greg Nadeau:

That means they DOTs will be pursuing aggressively the development of EPD policies and systems. So and there are a number of very large and prominent organizations. I had an opportunity to interview the president of the National Asphalt Paving Association, Audrey Copeland, and she was essentially an early booster E-ticketing was actually something that they as an organization advocated toward federal highway because they were as interested in getting their people away from other people during the whole COVID situation.

So it's helped me understand this on the worksite in a work zone, as you said, there's already all there's equipment there now. How will your technology, is it adapting or communicating with existing technology? For example, one of our alliance partners is a Trimble, and they're obviously very big in machine automated machine guidance technology. Is that a technology that somehow you tap into to get information about the work zone?Is it is it existing kind of technology? Is it your own? Sort of so.

Matthew Valle:

So I'll let Houston run a little bit with that one because he's working directly with with DelDOT and some of their folks to get the equipment on the job sites hooked up. So he can allude a little bit to that and then we can kind of go from there.

Houston Merck:

Yeah, absolutely. And so just like you mentioned this on the job site, you've got the information that's coming off now we know is this machine active? If this machine active, somebody is out there, we know that there's a real person out there that we should be concerned with their safety. Now, we know that there's material coming to this job site because of the E-ticketing piece.

We have great insights into that project is live as it stands right now, not this project is running for the next ten months, but there's actually physically people out on site that we want to be concerned with their safety. And now can we take that and feed that into these other programs to divert traffic, slow down traffic, reroute traffic,

How can we use those insights to better protect the people that are out there working.

Matthew Valle:

So on that, too. So, a lot of the big OEMs have as the new equipment's coming out, they have devices on the pavers and on the mills that are able to transmit in an open format. So there's a format called AEMP 2.0, which is basically a standard for getting data, telematics data from the fleets sort of across the supply chain.

So able to tap into that, use that like you said. Trimble, they have aftermarket solutions for some of the older equipment that needs that retrofitting, able to retrofit that equipment that can then transmit. And when we think about this first step, right, getting safety is obviously paramount on this. But when you think about where this starts to go is you can start to get better insights into how that particular piece of machine is performing out in the field.

If you have a paver out there, you can understand the volume of material that's going through that paver, where that paver is located, and you're basically able to build real time digital as builts as that, as that equipment's performing the work over time. so definitely partnering with

the big other technology players out there is going to be paramount in this and sort of bringing those folks together and open, you know, open standards.

You mentioned that a little bit before. That's going to be a key thing in helping all of this accelerate to where we need it to go. Obviously, federal Highway has the BIM for infrastructure road map. We want to make sure that the innovation is able to get spurred through open standards and obviously AASHTO is doing a phenomenal job of that with their AASHTO open API, I think, which is getting announced here shortly.

And that's just going to help spur additional innovation and additional ways of using the data more intelligently to help deliver projects safer, more sustainably and more efficiently.

Greg Nadeau:

I've never seen a technology spread across the country in the context of state DOTs and the Freeway Highway program like E-ticketing, it was just completely remarkable. Now, a lot of that had to do with the circumstances of COVID, as I said, caused states to want to do something about separating people in a number of ways, but including getting, you know, people climbing up on trucks in a work zone, collecting, you know, grabbing a paper ticket.

So from a safety standpoint, not ideal to say the least. So you really had the opportunity to with E-ticketing, to address a real safety issue in the work zone and the opportunity to essentially know now you now utilize, harness, utilize and manage data that was essentially going to die with the paper tickets. So you've got this whole new stream of data coming from simply the movement of construction materials to a job site.

When you talk about EPDs and the sort of system you've just described in the work zone, collecting information from other equipment that's already there, is that another source of data that now becomes something of value where it didn't exist before?

Matthew Valle:

100%, 100%. And when we think about, you know, again, I go back to federal highways BIM for infrastructure road map, when we think about how DOTs are managing this, you know, complex network of projects that are getting delivered, all of this data is going to help inform these next generation digital models.

We hear a lot about, you know, models, legal document. So this is all going to be very, very critical information for bringing this back into a model, helping with, you know, pay requisitions, basically real time pay requisitions. We're not having to chase down these pieces of paper trying to figure out what the contractors should be getting paid. Everybody's basically verifying this in real time, Right.

So helping speed that process up and then thinking about, okay, how can we build these projects better in the future with understanding, I know where my plant is, I know where my job site is, Why aren't I using the closest plant to the job site to deliver these materials in the most environmentally friendly manner? So this data is going to help inform, you know, how the next generation of projects get built in a very, you know, data driven decision making manner.

So very, very important there And then one of the piece of -

Greg Nadeau:

Longstanding policy for DOTs is across the country.

Matthew Valle:

Exactly. And then, you know, you talked about the rapid growth of this and Houston and team have done a phenomenal job of helping to identify within the DOTs champions of change, really. And Ohio DOT is a phenomenal example of like why this thing has gone so well because I don’t know if you want to talk a little bit about, you know, Janet and Ashley and how they've supported this initiative and worked with the contracting community to really get the message and be collaborative.

Houston Merck:

Yeah, absolutely. It's it's paramount, right? You can't innovate and not execute. The execution side has to happen. And that's where, like Matt said, having a champion, having someone that's going to go out there is going to communicate this to the industry, let the industry know that this is what we want to do as a state.

This is our goals. This is the direction we're going. If there's gaps, those are the things that we need to talk about. Let's have those conversations. Let's do that. But let's be on the same page. Let there be no surprises. The more we talk about this, the more that we hand those things off. And I think that's in Ohio, specifically What they've been they've done very well is that communication piece to the industry has been great.

They let everybody know what's going on, Any feedback we need to talk about specifications. Do we need to talk about how this whole thing works, What happens in this one weird situation, What happens in this other one off situation? Understand that we're all walking in this path together, right? It's not one person's going this way. That industry is going the other way.

We're all taking this journey together. And how do we how do we close those gaps? And that's it all comes back to that communication. So having someone that's going to own it, having so it's going to champion it, that's huge. That makes a huge difference. And rolling out this whole EDOT to platform and it's not exactly a secret that why Ohio DOT has been so successful that

her name is Janet Treadway and team and Janet served as a senior advisor to the National E-ticketing Task Force and was just she's just been an amazing advocate for this transition.

I had the benefit of the opportunity when we were producing the E-ticketing Info Docs to visit with her at a meeting that I think the HaulHub was briefing. The name of the organization that was hosting the meeting was the Ohio Aggregates and Stone Association. I think I got that right. We got an amazing an amazing executive director who could not have been more supportive about that interview with us for the piece.

And just in the context of the meeting, because he was bringing some people together who have reason to be, you know, skeptical about these things. They've a long history of relationships with stakeholders. But what Janet was saying to them was it's important to us that we have an ongoing, consistent relationship. You have any questions, any challenges associated with the transition?

We're here to talk to you. So they were having like weekly meetings and people could just call in and ask directly to the state, you know, what questions going. So, you know, that seems to be a common pattern in a similar situation in Delaware with the deputy secretary and chief engineer, Shanté Hastings. She we did a similar interview and she was talking about the role that, you know, engagement with the contractors plays in anything they do, rolling it out.

So how important is it for that industry relationship with the with either the technology companies or other players in the process and moving things along? I know you've had a lot of work, work done with, you know, relationship building with the state trade associations. Just give me a sense of who the players that it takes to make the successful. And how important is that collaboration?

Houston Merck:

Yeah, absolutely. And I think so that's one of the first things we do is we approach this as a partnership and one of the first things we do we come into a new state is communication. That's the first thing that we need to figure out where your here's templates, here's ways that we've seen other states be successful in approaching the industry.

This is what we see in work elsewhere. Here are centralized locations for you to come and read the information, to distribute the information. And so that's kind of what it all what all comes back to our first step in everything is organizing and communicating, communicating, having those dedicated people. We want to go out to industry. So you've got people like Matthew that are going out there, and then we come in behind his footsteps and he's already kind of laid the groundwork for us and then we can come follow in and make sure that we're true to those relationships.

Right. And that we want to keep following up, but we want to know if you have an issue or if there's something that we can do to improve your day to day. How do we make that easier for

you? And I think that understanding that we're here to continue to innovate, this is not one single feature that we're trying to get you to use, right?

We're here to continuously innovate. So if you have issues or there's something else that would make life easier for you, that's what we want to know. And that's how the product is going to be where it is today is based off that feedback and based off of hearing those things.

Matthew Valle:

Yeah, it's it's really a true partnership and like all, all these ideas that get generated, right?

We meet with our DOT partners on a weekly basis and have deep discussions about what do you folks want to see next in the platform. And literally a week or two later, the stuff shows up and basically minds are blown with like how fast things are moving. And that's it's really powerful to, you know, have that trust, build that trust with the DOT partners.

And it's really just a sort of an awesome opportunity to show them, you know, how modern technology works and is evolving and can help them, you know, in their daily business to solve some of these problems that they've had for a long, long time where technology can come in and bridge that gap that that they're having

Greg Nadeau:

Collaboration and partnerships key to advancing technology. I had a great conversation with Keith Platte, who runs the AASHTOWare Project that at AASHTO, of course, and just a real very, very interesting conversation explaining what AASHTO Wear did and how it works. And part of that conversation was their relatively new approach called an Alliance and HaulHub Technologies recently became an alliance partner, I think, and not partner. But Alliance. Explain to me the relationships, the contacts, the and from HaulHub Technologies point of view. How important is that, that partnership with AASHTO?

Matthew Valle:

So, we were fortunate enough probably about six or eight months ago to enter into that alliance with AASHTO. So, after I think about 12 DOTs that we had officially signed, we had enough momentum to work with AASHTO and say, Hey, I think it makes more sense to develop a little bit, you know, next step in this relationship.

And so really we're in a product alliance with AASHTO. So what that means is any DOT can now go into the AASHTOWare catalog, basically check the box, procure the HaulHub platform, and then then move forward and take, you know, take the innovations and kind of move forward with those innovations. So it's been a sort of phenomenal opportunity for us.

And I think now there's close to 40 dots that that we've got, you know, through the AASHTO side of things. And it's just been a phenomenal help in our growth. And really what this means is AASHTO is starting to develop this AASHTO Open Ware API and it's you know, really set of set a foundation for, you know, bringing those innovations rapidly to the dots and then tying into their toolsets to help them automate a lot of their processes, help them, you know, tie this data into whether it's the asset management side of things with like the ESRI RPIS piece or into the AASHTOWare project side of things, help

contractors get paid faster. It just opening up a lot of those opportunities to really integrate, you know, more successfully into the into the DOTs native software

Greg Nadeau:

You mentioned ESRI, and for our listeners who don't know the acronym soup of Everything ESRI is actually the name of a company and they're so key to what you're doing. Can you just give us a couple of minutes explaining what as he does so why it's so important to your approach?

Matthew Valle:

So ESRI really is like the fundamental geolocation technology that most DOTs, most governments are using to basically understand where assets are on a map in three-dimensional space. And so now as construction materials get digitized and geo located, helping dots understand where those payment assets are on a map and then run analysis through some of the ESRI tools, you know, using the combined ecosystems is very, very going to be very important for asset management and then understanding when payment needs to get replaced.

And those sorts of things are helping with sort of long-term planning of projects is very important. So as he does a phenomenal job of, you know, giving dots geospatial tools, that's to help manage their assets

Greg Nadeau:

we could do this all day, but we won’t. I just anything you'd like to add or underscore or before we have to wrap up this conversation and probably anticipate another one at some point.

Houston Merck:

EDOT I think it's more of a it's a concept, right, that we're going to continue to innovate. We're going to continue to add. Matt spoke to that, some of the pillars that we're working through right now. But it's a continuous improvement, right? We're always innovating. I think everything is going that direction and that's really what EDOT encompasses, is it's a directional change that's we're tying everything together.

There's going to be there's going to be more to come, right? There's always going to be something additional that can be looped in that's going to provide value on the job jobsite

Greg Nadeau:

And the alliance with AASHTO and AASHTOWare, I mean, these alliances, they have opportunities and similar practices with other companies. But what it's done to accelerate it E-ticketing largely because the technology that you provide, it is provided is in real time ready and effective.

And, you know, you're sort of you'll prove your own mettle over time. But clearly thus far it seems to be a very strong introduction. And that is going to provide from the standpoint if you if you begin with describing the benefits of E-ticketing alone that we've already discussed within 2 to 3 years, it's going to be standard practice around the country.

All that data that used to go on paper to die is now harnessed, managed and secured and able to be developed for untold number of applications. And we haven't even talked about the data source that you're going to get from incorporating environmental product declaration technology to the worksite, which is really what you're talking to the work zone. So it's it's a great example of how technology can literally revolutionize the way state DOTs do business overnight and provide huge payback and benefits.

So keep up the good work. I see a growing acceptance and commitment from state DOTs across the country to go there. And yeah, you've seen it first up, close and personal, working literally with most states and teams in the country.

Matthew Valle:

And I think not just on the DOT side of things, but once you look at on the private side, you've got massive support from like ARTBA, AGC, the equipment manufacturers, the major materials associations, all thinking about how we move into the 21st century and digitize a lot of these workflows and a lot of these systems.

And so you've got that support there. There's folks coalescing around a common vision on where a lot of this stuff goes. Thanks to federal Highways BIM for infrastructure roadmap, that's really setting sort of the bar and guiding light for where a lot of these folks are going. So I think in conjunction with the D.O.T. is working with those major private associations is really going to help this thing accelerate.

And like like you always say, we can do better, we can we can do this thing in in less than ten years. And so I think I think we're on a good path that well.

Greg Nadeau:

And when the BIM for infrastructure roadmap came out it was and I've congratulated Federal Highway and the authors. It's very, very well done, very well written, very well researched.

The only the only reservation I had was we can do better. It should take it shouldn't take ten years given we're already about five years behind where Europe is. So and I had this conversation with one of the authors and he said, of course you can do better. It's a function of commitment and resources. The more a state DOT is willing to commit resources and talent and ability and contractors, the faster they can get there.

It's not a function of the technology being, you know, we're not in we're not in R&D, the research and development term for our off of R&D. So, you know, it's we're just at such a crucial point where I think we can really continue to catalyze this movement as a collection of state agencies. So DOTs are uniquely positioned to do that.

Unlike most state or most public agencies in general, they can be very entrepreneurial and almost have to be to keep up with the changes that are facing them and the challenges that are facing them. The current IIJA or the bipartisan infrastructure law, billions of dollars over and above the program they're already administering, which was sorely needed.

And it's been really remarkable how they've been able to manage and meet the demands placed upon them and are continuing to deliver projects effectively. And it's already owing to some degree to technology involved in the process. So great work, great conversation. My message to DOTs across the country is keep it up if you're already there and if you're not yet get on board

Matthew Valle:

R&D rip off and duplicate

Greg Nadeau:

Rip off and duplicate, generously.

Matthew Valle:

Yeah, you've got it.

Greg Nadeau:

So, Matthew and Houston, thank you very much for joining me for this conversation, and I'm sure we'll do it again.

Matthew Valle:

Thanks, Greg.

Houston Merck:

It was a pleasure. Thank you so much.