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Paul Thies: When it comes to data science and transportation, the use cases extend beyond enabling autonomous and connected vehicles. Transportation systems, managers and planners are deploying cutting-edge solutions in their data collection and modeling efforts, which is helping them to maximize road safety and better contend with potentially hazardous locales. Hello, I'm your host, Paul Thies. On this episode of *If/When,* we discuss advancements in data sciences deployed on behalf of transportation safety.

Our guests for this episode are Sean Co, director of special projects and services at StreetLight , and Michael Brown, data and technology director at Jacobs. They recently collaborated as part of a team that successfully brought to market a transportation data solution for one of the largest metropolitan planning organizations in the US. In this episode, they shared insights from that experience, as well as their thoughts on how organizations can integrate data solutions into their workflows, and what they see as the path forward for the future transportation data landscape.

Michael and Sean, thank you both so much for joining me today. We're going to be talking about transportation data and safety, and it's little something that both of you know quite a bit about, actually. I'm really looking forward to talking with you. I think, both the StreetLight data capabilities, as well as that the Hive platform at Jacobs, specifically Hive safety, really fascinating in terms of transportation, and what can be done to enhance safety, enhance the mobility experience. It's a very fascinating topic to me. Appreciate both of you joining me today to unpack this for our listeners.

Michael, let me start with you. I want to just to set the table a little bit. Can you unpack for us the complexity of transportation challenges, especially in regards to safety and planning?

Michael Brown: About a year ago, my colleague Teresa Crisp and I built the council, some of our leading highways and roads transportation clients. Part of our client engagement was to understand where data could be better leveraged to solve some of their biggest needs. As we listened, it became apparent that they consistently face really three main challenges related to data. The first is similar to honestly, many organizations. They face data fragmentation issues, and may have silos within their own organization.

the roads, and a much more transparent planning and prioritization of their

Really, what's great, is it can track that at across the portfolio of projects that they design. It's really around letting the clients essentially track these KPIs, be able to pull in new data as it comes in, and help them really understand the effectiveness of their safety program, and tracking benefits against some of the predicted outcomes of our models. I think one thing we've really heard from that council of clients was that transparency is key. That's one of the big things that this does, is it puts it out in the dashboard. It shows the map, shows the hotspots, shows what went into the analysis, and it's a really powerful tool for communication with stakeholders as you make these planning decisions for safety.

Paul: That's super fascinating. I can imagine all kinds of efficiencies that can be achieved with tools like this, and then also when they're seeking funding in the next budget cycle and stuff, being able to show positive impact can certainly help them. Now, Sean, StreetLight is a leading transportation data provider, as well as a subsidiary of Jacobs. We're seeing a lot of emerging collaboration between the StreetLight and Jacobs teams, one of which is the program that we're talking about today.

We're leveraging the combined strengths of the technologies and domain expertise

StreetLight provides such valuable data around origin-destination, demographics,

organizations more easily and seamlessly work these data tools into their planning process?

Sean: Traffic counting actually goes back pretty far about 80 years with traffic counting units called traffic recorders that were around in the '30s. It was a strip that was laid across the roadway that printed a total traffic count on a strip of paper every hour counting cars, buses, trucks, bikes. It hasn't really changed that much since then, and the technology has changed of course, but the basic principle remains the same.

When I first started my career over 20 years ago, I would drive a big cargo van full of smelly rubber hoses, lay them on the street, secured the hoses with roofing nails while trying not to get hit by a car. That evolution, and especially with big data, we can now look at all the roads at once or do so over time or even back in time. We have historic data, so if something occurred in the past and you're like, "Oh, you know what? We didn't get the entry-level planner one to go out and put out the hoses on that particular month, we can look back in time."

It's like looking at your city through a straw at a single road to determine all the movements of traffic at all the roads at once and looking through that straw. There's millions to billions of dollars that are writing on how those traffic counts and movements are reported. Now, many of our public agency clients have another tool in their **[unintelligible 00:16:45]** to help current and future needs by looking to answer questions that they have not been able to do so in a cost-effective and innovative way all by sitting at your computer and running analytics.

Paul: My last question is for both of you and, Michael, I'll start with you. Looking at the road ahead, and you see what I did there with the pun, as we see the increasing advent of connected and autonomous vehicles on the road, how do you see tools like Hive Safety, the Hive platform and StreetLight's various offerings well positioned for integration into the future transportation data landscape?

Michael: That's a really good question and two things reall

Paul: Then Sean, same question for you. Connected and autonomous vehicles, how do you see all this rich data generation married up with the tools like the Hive platform and StreetLight's various offerings, how do you see that playing out in the future of transportation data landscape?

Sean: We're just really starting to crack the surface of what's available with connected to vehicle data. Right now we're using it with what we've been doing for the past several years in terms of, I would say standard transportation metrics like speed and volume. There's other attributes that connected vehicles are collecting. There's the body type of the vehicle, so that's, is it a pickup truck, SUV, passenger car? Is it a hatchback? Having vehicle type is really important, not only for safety, because heavier vehicles are more dangerous on the roadway than say a tiny car. They're also bigger, they take up more space on the roadway.

Secondly when you're talking about gas cars. Many, air districts really would like to know the fleet mix in terms of what vehicles are driving on the road. The bigger the car uses more fuel, therefore contributes to more greenhouse gases. That really helps the air quality agency determine the actual emissions from the vehicle fleets. Then there's other attributes which we're just starting to look at. Michael mentioned seatbelt data. There's occupancy which has been really hard to do in the past.

reactive. I'm assuming and I don't know because I'm not a planner. I'm assuming there's some efficiencies, some cost efficiencies that might be achieved by being able to tap into the data and say, this is where the roadway is going to be. We're going to see some problems if we don't head this off in the next six months or whatever it is.

Sean: You'll see that on roads where they will that say no trucks allowed. That's because of the impact partially to the roadway itself. It may have not been constructed to support the weight of those type of vehicles. If you're looking at like say an electric Ford F-150, that's a pretty heavy vehicle already with a battery pack, that can definitely have an impact on the roadway maintenance as well.

We had a customer, that was looking at vehicles and if they could predict the number of vehicles on the road to water pipe breakage and to see if they could determine correlations from that. There's a lot of other utilities and things in the roadway that, in addition to the pavement quality could also be affected by the vehicle type.

Paul: Sean and Michael, I want to thank you both so much for, your time today in unpacking this topic, transportation data and safety and again, congratulations on the team's big win with that MPO. A lot of great work that's being done. We will include on the website some more information as well as information about some of the team members who are involved. Thank you both for your time and, look forward to learning more about this as things progress. Thank you.

Sean: Great. Thanks.

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[00:25:17] [END OF AUDIO]