



- Daniel Newman: David Lou CEO of Plus. Thank you so much for joining me here at the 2022 Six Five Summit.
- David Lou: Thank you for having me.
- Daniel Newman: Yeah, it's going to be a fun conversation. We're really excited to add a dedicated track to talk about what's going on in the automotive space. There's a ton of overlap in AI and semiconductors, big data, because we all know that vehicles, trucks, mobility is going to become data centers on wheels. There's so much technology that's underneath and we're seeing how much bigger the bill of materials is going to become and the impact semiconductors are going to have. I'm going to be attending more and more events that are automotive focused. And as I keep going to these events for consumer and enterprises and seeing more automotive companies showing up. So you're seeing this huge convergence I imagine in your life, you guys are constantly sort of answering that question. Are we a trucking company? Are we a technology company? And I think the answer's probably, yes. Am I right?
- David Lou: Yes, you're right. I mean, what we're doing is we're applying technology to the trucking industry. So, clearly we are an innovative technology provider, but we really need to understand the needs from the trucking industry point of view and understand how we can utilize the technology to make the biggest impact to the trucking industry.
- Daniel Newman: Absolutely. And I think the world, the market, the trucking industry has become well aware of autonomous trucks. There's a number of different companies that have introduced, or at least marketed the potential. You guys are, you're in market doing things right now, but I think the market's generally accepting that autonomous trucking is part of our future. It's coming. In terms of, Plus and your organization, talk a little bit about where you're at in development, what's exciting you about this direction that you're taking and kind of what's the Plus story in this journey towards autonomy?
- David Lou: Yeah. I mean, first of all trucking is really an important industry for our economy. It's a trillion dollar industry and it's really exciting to be able to be part of the technology solution to help bring to market the technology that will help transform the industry. Now, what we do very differently is we look at a commercialization approach that would be able to focus on the safety critical to autonomous driving technology to help fleet address their pain points today. So we've developed a whole suite of technology that's capable of driving the truck all on its own, but how we apply the technology is to help the business cases for the fleets today to help the drivers drive the trucks safer, to provide a much better driving experience for the drivers to help save fuel, to provide much better fuel economy, to deliver more sustainable future for our society. So those are the things that we are doing that really get us very, very excited.
- Daniel Newman: Yeah. It's very exciting to watch the evolution. Of course, we're seeing everything from kind of L2 Plus, which is being implemented today, all the way to that full autonomous L4 and beyond. I think everybody's sort of wondering what it's going to be like the first time they're driving down the expressway and they pull up next to a big rig and there is no human driver behind the wheel. Although you made some great points there, David, that from a safety profile standpoint, I think



the trillions of instructions per second of the computing and plus the policy and all of the learning and training that's been done, it will probably be the safest of what's possible.

But it's kind of an acclimation thing, like seeing a robot cleaning the grocery store or something like that. You see it and at first it's like, "Wow!" And then eventually you see it and you're like, "Good." You know, and that's what we want out there. And I've been tracking your company for a while now, David, and over the last year you've had some really remarkable releases. Amazon made a big commitment, FAW, Aveco. And by the way, these are different, right? Some are OEM, some are fleet, but when you're working with companies like this, have you found anything surprising?

David Lou:

All of our customers, including the ones you just mentioned have one common characteristic. They're all very technology forward looking companies. They understand, and I'm very excited about our approach to bring autonomous driving technology to the market today. And we provide them a commercial product, which is called Plus Drive. And we collaborate very closely with each one of them to support their deployments. Now our work on the OEM, on the truck manufacturer side. And around the world would require very tight integration between our engineering teams and their engineering teams at the very fundamental based technical level to be able to test and bring to market this very safety-critical type of technology. And what we're looking at is to be able to install this technology at a factory and deploy it scalably.

Meanwhile, delivering this driver in technology to fleets would require a tight integration with the fleets right at the operational level. Some of these fleets are looking at deploying this technology. They just couldn't wait for the actual I'll call it year or two before the OEM can roll out this technology at a large scale. So what they've been working with us on is working on a post-factory install level at the retrofit level to be able to take advantage of some of this technology at a scale. So those are the deployments that we're undergoing today to help install at fleets to tightly integrate with their operation, to be able to deliver this technology to them today.

Daniel Newman:

Yeah. And speaking of fleets, and as you start to see this go from proof of concept, David, in many cases to commercial deployments, to scale commercial deployments, there's a lot of sorts of external environment considerations, right? You've got everything from how supportive are the governments and policy makers going to be? To the concerns of drivers about the adopting of technology like Plus Drive. What do you think are the important thing for these external influencers, decision makers, and contributors in this space right now to get them to fully understand the value of technology like Plus Drive?

David Lou:

Yeah. As you know, we have a two step strategy to go to a fully autonomous, driverless trucking future, right? So our focus right now is on deploying the technology as a product it's called Plus Drive, as a commercial product and using that to accumulate billions of miles of real world experience. And then in this process, we'll be able to prove out the safety level of our system at a level even safer than an average human driver by an order of magnitude. But technology is only part of the overall solution, right? So to get to the eventual, our vision of driverless future, technology certainly needs to be ready. But other things such as on the hardware level, our



ecosystem, our partners need to be ready. On the regulatory level, the rules need to be ready. And also from a consumer public acceptance level it'll take some time for the whole overall society to get used to this. You know, so many different areas. It'll take some time for things to be ready for us to really get to a truly driverless future for transportation.

Daniel Newman:

Yeah, I think by the way, David, what you're saying is correct across the spectrum. Trucking is probably one of the most compelling use cases for a lot of reasons. I mean, you look at even just the complexities of the insurance in that particular space and what a technology like this could do to reduce incidents. And again, of course, that goes back to some of my comments before about were you meeting resistance. Of course, there's going to be traditional drivers that are concerned about obsolescence, by the way, this is the same with any automation. This could be factories. This could be knowledge workers right now with the advent of AI and automation and workflow optimization. This is just one workflow in many ways. But what I'm saying is, there's a lot of process complexity and, having grown up in the industry, and having a father that's been around it forever he even sometimes says that won't be in my lifetime.

And I keep saying as a technology guy, I'm like, "Yeah, it probably will and I hope it is because I'd like to have you around for a while." And that's kind of the continuum of where this could really be in the mainstream much sooner if policy enables, if the lawmakers support, if infrastructure is developed and at the same time, if those things aren't done, it could be much slower. And you could see L2 Plus for instance, being around a lot longer because we really do need the technology, the C2V communication, the cloud to vehicle communications, the V to V the next generation of chip sets, and of course all the policy maps and stuff that you mentioned. So there's so much happening, but I oftentimes say it's not the tech, it's really not, it's going to be a lot of the external environment, whether it's going to let in this tech and it's going to happen.

I really do believe that, David. And so you're on a really good trajectory and you're in a really important business. So that leads me to a question because if I wasn't to ask you this, I would be missing a great opportunity. As someone that's running a company in this particular space, you've got me saying this could happen tomorrow. You know, somewhat facetiously. And my dad saying this won't happen in our lifetime also somewhat facetiously, where are we? When is this driverless trucking experience going to be mainstream? Or even when is it going to just become maybe geographically mainstream in certain regions?

David Lou:

I think it'll take some time, right? So our approach is rather than going down the path of predicting which year it'll happen. What we really focus on is can we take the same technology and apply to real use today and deliver benefits to the society, to our customers, right? And in this a progressive approach, if it takes a shorter amount of time for us to get to that eventual future, great. If it does take a long time, that's also very good because, throughout this time we're delivering value. You know, the ultimate use of technology is to help people, to help our customers achieve a safer mode to deliver more sustainable transportation solution to society. So as long as we're doing that, applying the technology to do that, I think we're, we're in a good place.



You know, there are things that are just complete, I say, outside of our control, right? The things that you discuss from a policy point of view, from a consumer acceptance point of view, and also there are other ecosystem partners. I mean, this is a very, very long value chain industry. You know, hardware's involved, automotive tech is involved. So to move the entire ecosystem, entire industry to a place where everything needs to be ready would perhaps take longer than most people predicted. But I think it's okay. You know, we, as ourselves, we're at the forefront of driving that change. We'll just keep working on it.

Daniel Newman:

Yeah and by the way, I like that approach because again, there's too many external impacts. And what is good about what Plus is doing is you've really built a business that has a now and a later. Now being the fact that we're seeing every vehicle from your everyday driver to your driverless taxi cabs and robo-taxis to semis, not semiconductors semi trucks, just for everyone out there, because usually I'm talking about semiconductors, but have a path to be on. And like I said, it's that path of today, Aidas systems are going to make the current situation with drivers and human in the loop safer, it's going to be collecting all the data, creating all the drive policy and that's going to feed the future, which it sounds like you're very well set up for which is going to be moving towards that driverless future.

And like I said, I don't see a way that it's going to happen with our current infrastructure being the roads, the way they are, entrances exits until we sort of start to look at, like I said, some proof of concept cities, maybe in China, for instance, it might actually happen faster. It seems like it might go that way a little bit faster, but we've got so much infrastructure, legacy debt here in the United States. You know, the roads aren't particularly well laid out. They don't have the sensors to make the communication between the vehicle. And then, like I said, how quickly do we add driverless to the road when there's still so many human in the loop drivers in the road together? And maybe that's a good question to sort of end on. I'm just curious your perspective, David. Does driverless trucks and driverless passenger vehicles have to kind of happen together or can the driverless trucks become mainstream well before the passenger vehicles do?

David Lou:

I think these two industries, the driverless trucks and driverless pass vehicles are interrelated, but they actually are somewhat independent of each other. They have very different application scenarios and use cases. What we call different operational design domain. For instance, for the industry, we look at the long haul trucking industry, the application scenarios, the ODD the operational design domain. We look at 90% of the cases are on highways, within enclosed driving environments. Versus if you look at passenger vehicles, a lot of driving conditions are in the urban scenarios. So the driving condition, the use cases, the hours used, the economics of the vehicles, those are quite different. The baseline technology are very much similar, so that's commonly shared.

So there are differences, there are similarities. I think the outcome will be interrelated. I think eventually there's no question in my mind, eventually years later, we're going to see a future where it's highly automated, right? So, most people don't like driving. It's kind of like a hundred years ago, you predict where the automotive industry is going to get to while you basically have horse carriages running all around, you see that future, right? But you know, how long is that going to take? Is that going to take 10 years? Is that going to take a hundred years? We don't



know. It's going to take some time. But the important thing for us is, are we on the path to get to that eventual future? Are we making positive impact and changes to reach that eventual vision? I think we are. So, that's what gets us motivated and excited about working on this every day.

Daniel Newman: Well, clearly based upon the customers, some of those I've mentioned here that are already buying this technology, investing. It shows that not only are you building it, but that those companies that are going to need it are already looking at investing and employing the technology to get to where they're going in the future. So it's a very promising space. It's exciting, David. I'm really glad you were able to come by the Six Five Summit 2022, talk a little bit about the future and the current state of autonomous trucking. I'm looking forward to coming out and experiencing it. I'm going to get behind the wheel of one of these sometime this summer. So there'll be more for everyone out there from me all about this. But for this particular conversation, David, I got to say, thank you. I hope to have you back again on the show or at the summit next year, and best of luck to you and to Plus in the rest of this year and beyond.

David Lou: Thank you for having me. Looking forward to having you on our Plus Drive enabled trucks.

Daniel Newman: See you soon.