Judson Althoff
Microsoft Ignite 2022

JUDSON ALTHOFF: Welcome back, Seattle. (Cheers, applause.)

I'm really excited to talk to you about one of my favorite areas of innovation, the industrial metaverse, but before we dive into the industrial metaverse, I thought I would just have a moment with you all to kind of share a bit of the framing of the metaverse at large. Because if we were honest with one another, and I pulled a hundred of you aside, and asked you each what your definition of the metaverse was, we'd probably end up with at least a hundred different answers.

And so I thought what I would do is share our view of how we think about the metaverse. Essentially there are three realms of the metaverse, or three categories of innovation in the metaverse: the consumer metaverse, the commercial metaverse and the industrial metaverse. And I want to spend a moment kind of defining each of the three of them.

So the consumer metaverse is most likely the one that you are all most familiar with. It's the notion of bringing avatars to life for more socially immersive experiences or developing new kinds of entertainment through enriched gaming environments. But nevertheless, it's all about igniting a new generation and a new wave of immersive experiences in our personal lives.

So Microsoft in this space will have its own first party expression, of course, through our Xbox games and xCloud, and how we think about the future of immersive gaming and inclusive gaming, but we will also rule change so that our B2C customers can in fact capitalize on the omnichannel nature of the consumer metaverse as well.

The commercial metaverse is all about taking those same kinds of immersive experiences and bringing them into the world of work. And trust me when I say this is far more than just 3D Teams. It's about having inclusive and diverse perspectives brought into the collaborative environment. Think of it as being able to teleport into the rainforest and truly understand with your colleagues what it's like to replant trees and help our sustainability efforts on the planet or design the next generation of new products with mixed reality capabilities.

The commercial metaverse will redefine how we collaborate as a society, and it will help us generate new ideas faster and more effectively than ever before. So that brings me to the industrial metaverse. The industrial metaverse is all about connecting the physical and digital worlds to help drive us forward in the world of industry. It combines technologies like IoT sensors so that we can matter model any manufacturing process or supply chain or logistics process, take the data off that process and populate it into large-scale data lakes in the cloud.

Once we have the data in an enriched state and have pipelines flowing in, we can reason over that data using machine learning and AI capabilities and build out digital twins or

digital replicas of any manufacturing process, any supply chain or logistics process to simply make it more effective, more efficient and arguably more sustainable than ever before.

That's not where it stops, though, because the twins themselves get connected into this digital feedback loop with the people on the front lines that actually make that – the magic happen in those scenarios. We feed the twin into experiences on handheld devices through Teams and Teams as a platform. We allow people on the front lines to democratize that experience and build out their own app tool chains to have their lives represented in digital form.

And so you can think of this as the model teaching the people and the people teaching the model for real-time digital feedback and enhanced learning. But rather than listening to me talk about it, my goal here is to bring that to life through three customer scenarios that we're actively working on today. Because whilst there is still a lot happening in terms of the evolution of the metaverse today, the industrial metaverse is here and now.

We have hundreds of customers leveraging these capabilities to build better products to help design better outcomes, more sustainably and more effectively than ever before. So there are three scenarios that I want to take you through: how you design new products, how you build new products, and how you operate your environment, your supply chain, your overall logistics operations, leveraging the power of the industrial metaverse.

And again, this is technology that is here today, and there are customers across all industries taking advantage of it, and I want to share that with you right now. If you think about it, if you make anything or you move anything, you create a carbon footprint. If we can simulate that infinitely in the cloud, before you make it or before you move it, we can help you build better products more effectively, more efficiently with lower carbon footprint, lower water utilization more sustainably than ever before.

So let's get into it. So most analysts estimate the opportunity in the industrial metaverse to exceed over $200 billion by 2030. And again, it's across these three frames. It's designing new products, building products and optimizing your operations using these immersive technologies in the industrial metaverse, and bringing to light these digital feedback loops for your people and for your business.

The first scenario I want to unpack is the partnership that we have with Equinor, where they are committed to having their 20,000 employees that operate across 30 countries bring forward a net-zero energy ecosystem by the year 2050. They're using the industrial metaverse to design their products and simulate their effectiveness before they implement them in the physical world.

But don't just take it from me take it from there, Executive Vice President and Head of Technology, Digital and Innovation, Hege Skryseth.

HEGE SKRYSETH: There's nothing more important today than the energy transition. In the world, we need more renewable energy, faster. Equinor is a leading international energy company. Our goal is to become a leading company within offshore wind, and Microsoft technology plays a vital part into making that transition.

Designing wind farms holds a lot of complexity. So just imagine, the blades are 105 meters long. It's far out in the ocean. You need the cables to get the power back to shore. Sometimes you use floating wind farms, and all of them perhaps to play together in a cost-efficient way.

The industrial metaverse is very important for us, going forward, for the whole concept selection phase, which is basically designing the wind farms. You can bring all the various data forces together and you can choose and test concepts based on simulation.

Our goal is to operate a virtual wind farm before it's built. By using these tools, we can first and foremost design the wind farm, but also in the future, build, operate and maintain in a sustainable and cost-efficient manner.

This is very important for building sustainable solutions for the future.

JUDSON ALTHOFF: The next category where we see the industrial metaverse coming to life with many of our customers is how we help them build products more effectively. I had the fantastic opportunity to tour Mercedes-Benz's new Factory 56 in Sindelfingen in Germany last Friday to capture how they're leveraging the industrial metaverse in their build process.

You can see the energy transition coming to life in this factory. It's a fantastic facility, because they're producing the Maybach, the S Class and the brand new each EQS electric vehicle right there on the same line. It's not just about building more sustainable products; it's actually how you build them that has the biggest impact on the environment.

If you think about it, many companies have to build new factories in order to produce more sustainable products. And that building of the factory itself, frankly, causes with a lot of impact to the environment, from pouring concrete, which is one of the most impactful scenarios, to having new facilities, new machinery, and wasting the existing assets that they currently have.

Daimler has figured out how to thread the needle on that and leverage the industrial metaverse to build products simultaneously on one line. And I'm delighted to have Jörg Burzer, who is a member of the board at Mercedes-Benz and responsible for all production and supply chain.

Jörg, it's fantastic to be with you here on this side of the planet now. Thank you for joining me here.

JÖRG BURZER: Hi, Judson. Thanks for having me.

JUDSON ALTHOFF: Hey, so Jörg, we had an awesome announcement that went out earlier today about our partnership and how you're leveraging the industrial metaverse to empower the future of Mercedes-Benz design and build process. Maybe you could share a little bit of what it means to you at Daimler.

JÖRG BURZER: Oh, it means a lot, Judson, so we're very excited about this partnership. I'm standing here right now in the Factory 56 right in front of the line you just mentioned, where we produce the EQS, S Class and the Maybach. And at Mercedes, you know all about our customers. That's really – that's really our focus, and we want to build better experiences, we want to build better services, but we also want to build better cars, the world's most desirable cars.

And that's why we are so excited because with this great partnership, and we build everything on Microsoft Azure. And this will help us to bring our performance also to the next level. So, we are working on, really, with you guys, to use the data which we have on the Microsoft Azure cloud, to really work on better quality, to really work on better efficiency. We're calculating to create efficiency gains of around 20%. And at the end, it's all about our customers.

JUDSON ALTHOFF: Super, Jorg. One of the things that was most impressive to me was the democratization of the entire experience. And I shared with our audience just a moment ago about how digital twins can connect back with people on the front line. And at Factory 56, you have everyone from the people on the frontlines to the plant manager to the process engineers enriched by the experience that you've created there. I wonder if you might share a few words about your views of that, as well.

JÖRG BURZER: Yes, we want to really have everybody using data. So, we want to bring the creativity of our teams, from the manager to the colleagues on the line working everyday on the line, to improve our processes. And you talked a lot about the industrial metaverse. I'm even dreaming about that every day because this has so many opportunities, great opportunities which we have, because we can simulate processes. We can simulate also quality processes. We can think about how we connect the dots between data sources and increase our efficiency.

And one of the topics which is very, very important also, personally to me, is sustainability. And you mentioned that as well, right now, sustainability is so important for the future of our planet. And what we can really do is we can simulate what carbon footprint we can manage and improve, even, with this industrial metaverse and with the cooperation with Microsoft.

JUDSON ALTHOFF: Super, Jörg. Listen, thank you so much for the partnership. It's truly impressive what you're doing. To me, it's one of the most pragmatic utilizations of technology, impacting business outcomes and societal outcomes. Thank you so much for all the work you're doing, Jörg. Really appreciate it.

JÖRG BURZER: Thanks for all your support, Judson. Thank you.

JUDSON ALTHOFF: Thank you. Have a great one!

So, my final scenario is how we leverage the industrial metaverse in operations, because not every company has the opportunity to retool their environment. Many of our manufacturing supply chain scenarios are in fact brownfield. You have to leverage the technology in the environment as you see it. And so, that's precisely what we've done with Coca-Cola.

Coca-Cola is one of the most storied brands in the history of humanity. They are backed by 250 bottlers that bring the brand to life through great products for customers around the world.

We have the opportunity to work with Coca-Cola Hellenic, one of the largest bottlers in the Coca-Cola ecosystem. They serve 29 markets across Europe. They have more than 55 facilities across Europe. They produce, just on one line alone, 90,000 bottles of Coca-Cola and Coca-Cola products per hour. And so, you can imagine an intense environment that really can't ever go down, needs the predictability and resiliency of the supply chain to make sure that they deliver products effectively and efficiently.

We were able to work with them within 12 weeks, leveraging the industrial metaverse, from first stepping foot into the factory and building out the sensor fabric, creating the digital twin and allowing the factory workers to become immersed in the twin itself. And within that 12-week period, we saved the factory over 9% in energy costs in that 12-week period alone.

And so, you can see the power of these systems. They effectively pay for themselves in a very short period of time. They truly help you build better product, better processes more effectively, more efficiently and more sustainably.

I'm really happy, though, that we're actually going to be able to show you some of this and have you step into the world of Coca-Cola Hellenic in their Edelstal bottling facility in Austria. And here to share all of that with you is one of our foremost experts in the industrial metaverse. I think her official title might be "Queen of the Industrial Metaverse." But Morgan, why don't you show us the magic that's happening at Coca-Cola Hellenic?

MORGAN WINTER: Awesome. Thank you so much, Judson.

Hi, everyone. I'm so stoked to share with you our custom-built HoloLens, leveraging Microsoft's Mesh to visualize CCH's bottling facility in Edelstal, Austria. This immersive digital twin allows us to gain access and visibility across production lines, bringing together different data from various systems and sensors into one view. So, let's dive in.

All right, so we're greeted on this global view, and we can see all of the active production lines that Coca-Cola currently has running. This is super great for production managers that want to share stats across different facilities. But for today's demo, we're going to click into Edelstal, like Judson said.

And if I take a couple steps closer, we can actually see the entire A3 production line represented here. So, there's a flow molder, a filler, a capper, and actually, as I click on each one of these elements, we can not only see real-time IoT sensor data coming off of them, but we've added some machine learning as well. So, we're getting the full operational output of each of these pieces of machinery, which is really great for the factory floor operators.

But what's actually even cooler than that is if I take a couple steps back now, I can call on an AI assistant and she's going to run some potential simulations for us.

AI ASSISTANT: Hello. Bringing data from disparate systems into a single view includes the ability to make data-driven decisions. Here we can see the current idle output of energy, water and CO2.

MORGAN WINTER: So, this AI Assistant was created using Azure Bot Framework neural text to speech, as well as various performance capturing tools. Not only is she giving a human face to a data simulation, but she can also give us recommendations that we can take to make our operations more sustainable. So, why don't we have her go ahead and do that for us now?

Assistant, show alerts.

AI ASSISTANT: You have an alert on one of the elements. Showing it now. Here is a comparison of CO2 emissions with energy usage. In this view, we see the correlation between energy consumption, the operating status of machines and CO2 emissions. Knowing temperature and pressure settings could reduce energy consumption by 9%.

MORGAN WINTER: So now that we have these data driven recommendations from our AI Assistant, we can go back and collaborate in Mesh or Teams with the various stakeholders that are in charge of running the plant in person and see if we can optimize operations even further.

So, I hope everybody enjoyed their trips into the industrial metaverse. If you happen to be here in person at Ignite, we have a booth just across the skybridge, and we can walk you through this ourselves, but back to you, Judson.

JUDSON ALTHOFF: Thanks, Morgan. Thank you so much. Great job. (Applause.)

So, if I summarize across design, build and operate, the industrial metaverse can unlock potential like never before across many, many different industries. And we're excited about the opportunity to work with all of you.

If you want to learn more about it, go see Morgan, if you happen to be here on the floor in Seattle. If you're watching digitally, we have another session that's led by Andy Pratt, who leads our industrial metaverse practice here at Microsoft. And he's going to show you how we actually unpack all of the technology behind the industrial metaverse, and how you might leverage the same. And of course, please work with your local teams across Microsoft to help understand what the industrial metaverse might do for you and your business.

Look, I can't tell you how passionate I am about what we can unlock together here, leveraging these capabilities. If we can digitize the world's manufacturing, the world's supply chain and the world's logistic networks, we can create better processes more effectively, more efficiently, and we might just hold the world sustainability challenges together. Thank you very much. (Applause.)

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