Microsoft Inspire 2019
Judson Althoff
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(Video segment.)

ANNOUNCER: Please welcome Judson Althoff. (Cheers, applause.)

JUDSON ALTHOFF: Good morning! Good morning and welcome to Microsoft Inspire. I couldn't be more excited and thrilled to be here with each and every one of you. Look, I've been doing this for a long time, longer than I care to admit. And, fortunately, I've been a part of the partner ecosystem my entire career. And I have to say, this is the best partner community in the entire industry. I am so thankful for everything you do each and every day. Our confidence in you is just enormous and the impact that we have had this past year has truly been amazing. So, thank you for your passion, your energy, your time, effort, your tenacity, and your perseverance. Thank you. (Applause.)

So, FY19 is truly a landmark year for Microsoft and all of our partners. Really, truly a landmark year. The marquee wins that we've had across industries have been just stunning. The logos that you're looking at now actually just represent our best wins from the last two quarters alone. If you read my earnings blog, you'll hear about how we're making progress in financial services, retail, healthcare, government, education, oil and gas, automotive -- to a number, the investments you've made in industry have just delivered tremendous progress and everyone's taking notice of just how powerful this ecosystem really is.

So, once again, congratulations on all of your fantastic progress.

Earlier this year, Bloomberg actually did a piece on Microsoft's transformation. They talked about the innovative spirit and how it's been reignited inside of our company. There was a lot of focus on our R&D efforts, but I think what made me most proud was that the focus of the article was really on our customers, where it should be. Again, for us, it's less about Microsoft becoming cool and, frankly, more about us making our customers cool. And that doesn't happen without all of your hard work and energy. Our job is to deliver great products, great intellectual property that effectively becomes your toolkit for delivering solutions to market. And that came alive through this article.

The other thing that the article talked about that really, for me, was a proud moment was the fact that two years ago, we embarked upon this journey of transforming Microsoft's go-to-market model, showing up differently for our customers, putting their value and their impact first. And the article did a fantastic job about talking about our progress, and I want to play back our FY19 successes to you with those same five pillars -- our industry focus, our focus on technical solutions, our investments in customer success, the digital impact that we have had, and of course, our One Commercial Partner program.

So, in FY19, our investments in industry were awesome. So, whether it be NRF or HIMSS or Hannover Messe, customers, analysts, PR, everyone is taking notice of the progress that we've made together, the differentiated solutions that all of you are building and taking to market, and the impact that it's having not just for individual customers, but for entire markets.

If you take what we've done in retail alone with Walgreens, with Kroger, with Unilever, the impact has been enormous because we're, effectively, creating this consortium across retail that empowers them to leverage our technology to make a difference in the areas that matter most to them.

And it's great business for all of you because it allows you to do more than just deliver cloud solutions, it actually allows you to deliver differentiated value in the way that customers see it to be most valuable.

Our focus on solution areas, really, really just has lifted us enormously forward in the eyes of our customers. We've pivoted away from point product innovation. I'm very proud of all of the innovation by product that we've had, because it has been a tremendous year for us, what's really, truly been different is how we composed them into solutions.

If you think about it, take for example all of the great modern workplace tech that we've delivered, whether it be enhancements in Windows 10, capabilities in Surface, our OEM device partners delivering great form factor solutions. The investments we've made in security, and of course Teams, that's really ignited the way in which people collaborate.

All of those products have truly lifted our innovation forward. But what matters most to customers, frankly, is the fact that they actually experience a modern workplace solution that transcends form factors and really actually makes their people far more productive. That's what matters most.

And if you look at it across solution area, the progress we've made in business applications, people taking notice that we're making ground on Salesforce, the core effort that we have in apps and infrastructure, and of course data and AI, to a number, we've all lifted solutions forward for customers.

And it's been great, again, for your businesses. Those of you who have invested in practices by solution area have seen enormous growth this year, far more so than what has our traditional business been. It's creating annuities for all of you, and I appreciate sincerely the investments that you've made.

So, then when I think about the anchor tenant of our commercial model, it's customer software. And that begins and ends with partners. It's about living with the customer beyond the deal. In fact, if you look at the headlines that are posted here, it's less about wins. In fact, the word "win" really isn't on the charts. It speaks of partnership, alliances,

unleashing new capability together. Like the work that we've done together with BMW, creating the open manufacturing platform. That creates enormous opportunity for intellectual property vertically to be built across the automotive industry, for BMW, Microsoft, and all of our partners so that there's this richness of an ecosystem that can benefit from all of the work that we're doing together.

Similarly, if you look at the work done at Kroger, wow, we've taken a huge, huge grocery provider and enabled them to actually become a technology company, delivering a shelf edge experience that allows them to connect with their customers, digitally provide advertising, and then actually create a whole new line of business in terms of engagement with their customers. It doesn't happen without you investing in your own skills.

When I look at nearly 200,000 of you that have become certified on our rich new cloud capabilities, and 40,000 partner companies that have become certified and added credentials, that is what you do to invest in customer success. So, thank you, once, again, for all of your efforts.

And, of course, we've got to do all of this at scale because this community, this ecosystem stands for something more. It's about having global impact, and we can't do that unless we operate with enormous scale and efficiency. And so we've invested materially in all of our engagement capabilities. This year alone, we unlocked more than eight million new customer contacts. Now, look, we did more than just that because if I threw eight million business cards into a fishbowl and said, "Good luck, partners, go for it," I think you'd probably say, "Hey, thanks, Judson, but no thanks."

So, we've invested more than a million hours this last fiscal year alone in our inside sales centers curating those opportunities so that we could pass more than a quarter million leads out to our partner community. This impact has just been enormous for our business, our corporate businesses, our SMB businesses have grown better and faster than ever before. It's been a landmark year for these businesses, and I appreciate everything you guys are doing to grow this community of customers and invest in our mutual success.

And of course, the cornerstone, the foundation of our commercial model rests in our One Commercial Partner program. I stood in front of you two years ago and said I would build with you, go to market with you, and sell with you. And in FY19, we did exactly that. In fact, we had more than 22,000 IP co-sell wins together. That's your intellectual property running on the Microsoft platform, us working together to bring those assets to market and sell them together effectively to customers.

Accordingly, our Cloud Solution Provider Program grew over 100 percent year over year on top of pretty huge numbers. And the bottom line is that when we work together, business is better for Microsoft, business is better for you, and business is most certainly better for our customers.

But perhaps the most important thing, in my point of view, beyond all of our financial success is the investments we've made in our culture.

I want to speak about this using the word "our," because once again, I see the partner ecosystem as an extension of Microsoft, so our culture and the fabric of how we operate is also extended to you. You're invited to be a part of this family.

So, it begins with this notion of having a growth mindset, a learner's mentality so that we can embrace new technologies and light up new solutions for our customers, but it ends with making a difference. It ends with making a difference because the differentiated capabilities within this ecosystem stand for investing in the things that matter most to the planet.

The three things in the middle are core to making them come to life. Us operating as one Microsoft when we engage with you. Investing, obsessing over our customers, putting their needs first. And, of course, investing in diversity and inclusion.

I want to take a moment to talk about diversity and inclusion because we've made huge investments. We're on a journey, and each day is a new day of learning. So, I want to share with you three stories that really meant something to me personally this last year. And I'm going to start in Fargo, North Dakota.

So, Fargo was a site that came to us through our acquisition of Great Plains Software some years ago. And we've grown our investments there. In fact, Fargo is a little slice of Microsoft. There's a piece of human resources there, finance, R&D, of course our support organization and our inside sales organization. So, it's a little mini Microsoft running in Fargo.

And we've invested a lot in recruiting early in career, diverse talent to come work in our thriving center in Fargo so that we can curate talent and promote them across all different areas of the world for our company. But it can't stop with just creating diverse representation. You have to invest in inclusivity.

And so we had an inclusion day in Fargo, where we went out and we met with the three mayors of the local cities around and communities around Fargo, as well as the chiefs of police. We spent time explaining to them our values and what matters to our people. Because it's not just making sure that they can learn, grow, thrive, be happy in their job, but that the community around them also supports our values so that their families can also have enriched lives.

I'm really proud of the work that we've done there. I don't want to claim victory, I want to be really clear. We still have a lot more work to do, but I'm proud of the journey we've started.

The second area of investment that rings true for me in a personal way is our investment in accessibility. We hosted an Ability Summit earlier this year, and we had over 1500

people come together and talk about how to develop and innovate with accessibility as a first-class priority. It was a fantastic event. We talked about making sure that all of our customers, when innovating new digital solutions, have that capability, have that accessibility ethos first and foremost in their minds. We created jobs, and it was a fantastic moment for us. Far more to do that. Far more to do there. We've actually invested in a developer who was blind to be a part of our commercial software engineering team so that we can do QA testing for accessibility. And we want to encourage all of you to do the same.

And then, finally, the third highlight of the year for me that was really a personal one was our investment in affordable housing. Look, the digital economy has lifted up to new heights. It's lifted the world, the financial world to new heights. But we can't leave our communities behind. It's just not acceptable to have teachers and firefighters, police officers not able to work in the cities that they support. So, our investments in affordable housing are critical and meaningful to what we stand for as a company. And I know so many of you are making the same investments. I really appreciate it.

Again, this is what it means to be a Microsoft partner. It's different. Calls us to a higher standard, and I appreciate your investments.

So, look, tremendous, tremendous progress in FY19. Tremendous progress. But we have more to do, much more to do. And I don't say that to put some lump in your throat or make it sound daunting, because it's been a fantastic year, and I want you to celebrate that fantastic year.

But I do want to call you to a moment in the video that rolled before I walked on stage where it talked about seven billion people. And, sure, we have one of the largest partner ecosystems on the planet. Our capabilities are rich. But by contrast, we're the few when compared to the seven billion people that need our help. So, it's about the few empowering the many.

And so when I thought about what is the "more to do"? What does come next? I came back to Microsoft's mission. It's deeply meaningful for me personally: To empower every person and every organization on the planet to achieve more.

And it sparked my thinking for this keynote and the message I really wanted to share with all of you. For me, it sparks this concept of democratizing digital, making sure that everyone -- everyone can benefit from a digital experience. And that we enable everyone to participate in the digital economy. That's what's next for us.

I'm really proud, of course, of the great wins we've had. I'm really proud of the marquee customer relationships that we've struck. Of course, it's great to talk about all of those things, but once again, we stand for something more. For me, it is a higher calling. And for us, I want it to be a shared aspiration.

So, I want to unpack this for you -- unpack this concept of democratizing digital. It starts first with equipping everyone with modern skills so that they can participate in the digital economy. Microsoft will invest over $100 million this year in enabling you and enabling our customers directly and in our own skills, because we believe these modern skills are critical to deliver that digital experience to everyone.

From there, it's about putting artificial intelligence to work. And it's not just about optimizing the business process, it's about enriching the work that people do -- igniting the human spirit, invoking that learned nature of what it even means to be human. To do this, we actually enable the business to learn in real time, in real time, through the people that make the business happen.

The next principle of democratizing digital is this notion of connectedness. Every CEO on the planet wants to be a fly on the wall on the front lines of their business. We can connect the front lines to the boardroom.

I'll bring this to life for you with a really practical example. Take Azure Machine Learning, one of the more complex and robust services that we offer in Azure, has the ability to reason over enormous amounts of data, optimize a business process, but it doesn't actually come to life until you implement that collaboration fabric, you implement Teams to connect the front-line worker to the boardroom. That's what enables the business to truly come to life, to really realize impactful gains.

Every company is also becoming a technology company. Developers will change the shape of every company on the planet. This developer ethos, tech intensity, will have to be born inside of every company in the future. And so what we want to do is we want to empower the elite developers all around the world to enable the citizen developers. For me, this comes to life through GitHub and our Power Platform. GitHub enables our rich ecosystem, the best developers in the world to innovate productively and efficiently. Because, look, this idea that somehow we just hire more elite developers is almost nonsensical. That skills deficit is very real, so we have to make sure our very best are as productive as they can be. So they can take their innovative assets and make them inheritable into the declarative application platform that is PowerApps so that the citizen developers of the world can find their own tech intensity and really develop and innovate at scale.

Look, if we do this and we do this well, what we will do together is we will eliminate the mundane nature of work so that people can focus on the problems that matter most.

Look, the most valuable asset we have, bar none, is human time and attention. If you make technology the empowering force, you put it to work, you enable that human time and attention to solve the problems of the planet. That's what democratizing digital means to me.

I couldn't be more excited to introduce my first guest on stage, because I believe that Unilever is actually bringing democratizing digital to life today. What I'm going to share

with you is not a series of demos, but actually a real solution they've implemented where, from the boardroom all the way down to the front lines, they're making digital work for everyone. I'd like to share this video to you to introduce you to Unilever.

(Video: Unilever.)

JUDSON ALTHOFF: (Cheers, applause.) Ladies and gentlemen, please join me in welcoming Unilever's Chief Engineer, Dave Penrith. Dave, welcome.

DAVE PENRITH: Thank you. Thank you. (Applause.)

JUDSON ALTHOFF: Welcome to Inspire.

DAVE PENRITH: Thank you very much.

JUDSON ALTHOFF: So, listen, I'm truly impressed by all of the work that you're doing at Unilever, but let's start with you, because suffice it to say, you've been at Unilever for a little while.

DAVE PENRITH: Yeah. Great, thanks, Judson. It's really great to be here.

This is me, actually, as a 16-year-old on my first day at Unilever. And over the last 34 years, I've worked there in every level of engineering. And I stand here today very proud to be Unilever's chief engineer, representing a great team in engineering and the wider supply chain within our company.

JUDSON ALTHOFF: Awesome. (Applause.) 34 years. Suffice it to say, technology has changed a little bit over that period of time. How have you stayed fresh and how have you continued to bring innovation forward for Unilever?

DAVE PENRITH: You know, today, we've got unlimited access to data. And what we've tried to do is encourage our community, me for engineering, to be constantly curious and really ask what are the possibilities all the time?

In my role, I can't possibly hope to fix problems all over the world. We've got hundreds of factories all over the world. But what I can do is I can give people the empowerment and the tools to fix their own problems. And where we are now is we've got a digital architecture that not only connects all of our factories, but also more across the wider supply chain, too.

JUDSON ALTHOFF: Well, it's obviously working because Gartner has rated you as "master" category in end-to-end supply chain management. The impact has been enormous.

I have to say for me personally as well, having had the opportunity to come to your London facility and see your work there as well as actually go to one of your factories,

I've been truly impressed by the work that you've done. Maybe you want to share a little bit with the audience about that.

DAVE PENRITH: Yeah, it was absolutely fantastic to have you. I remember you said something afterwards, you'd love the opportunity to bring Valinhos to Las Vegas, so --

JUDSON ALTHOFF: Awesome. With the help of a little bit of technology, we're going to bring everybody into the Dove factory.

DAVE PENRITH: Judson, welcome back to Valinhos.

JUDSON ALTHOFF: Awesome.

DAVE PENRITH: We provide Dove here, and in a number of places around the world, and we produce way over 200,000 tons of this all over the world.

JUDSON ALTHOFF: Yeah, so, listen, when I first went to Valinhos and somebody said, "Well, hey, we're going to show you the digital work we're doing in a soap factory," I kind of thought to myself, okay, how much digital work do you really need to make soap? How hard could it be? But, boy, can I say that I got schooled by everyone there. It's actually an incredibly complicated process, maybe take everybody through that a little bit.

DAVE PENRITH: Okay. So, a quick lesson in soap making. You know, at the top of this, it's over 40 feet tall. And at the top of that, we start with mixing a lot of raw materials. That's a hot process. So, there's a lot of heat in there. So, we need to cool that as it comes through. We then extrude the soap and we cut it, we shape it, and we send it off to be packaged.

And we've got three of these lines operating in Valinhos, and if something breaks, you've got to go and physically find it and you see how big it is over three floors. You've got to go and find that.

JUDSON ALTHOFF: Yeah, clearly a complex operation. Look, if anybody had to climb all over this thing to try to figure out what operating parameter came out of order or how to actually optimize the process, tremendous amounts of iterative refinement and manual labor.

So, you've used digital twin to actually help optimize the process. Why don't you share with everybody, people may not be familiar with what a digital twin is. Help everybody understand what you've done.

DAVE PENRITH: Yeah, sure. So, a digital twin is a virtual representation of either a physical asset, a process, or a system. And we knew that to make the next steps, we needed to ask ourselves different questions to get different insights.

So, what we've done is we do mass data collection first and I think the learning for us was not to be prescriptive. Just take all of it, and we call it the "firehose of data." We feed that into the digital twin and then we look -- the analytics looks for insights and trends, and then we start to use the algorithms to learn. And we learned that it's actually like a child learning. The more data it gets, the more it learns. The more it learns, the faster it learns, and gets increasingly accurate.

And, eventually, we switch prediction and control over to the twin. And what we have to say is the digital twin learns from the past, it lives in the present, and it creates the future.

JUDSON ALTHOFF: That's awesome. So, why don't you show everybody what you've built?

DAVE PENRITH: Okay, let's have a look on here. So, you can see we've got a number of connected factories on here. Let's go look at Valinhos. Here we are. And there's the lines, the three lines in Valinhos we mentioned before on here. Let's take a look at line one. So, here's line one. And line one's currently running now at around 500 bars of soap per minute.

JUDSON ALTHOFF: Wow, so 500 bars of soap a minute, three lines, 1500 bars. Effectively, we could make a bar of soap for everyone in this arena in less than ten minutes.

DAVE PENRITH: Yes, that's right. That's assuming nothing goes wrong.

JUDSON ALTHOFF: Pretty impressive.

DAVE PENRITH: Because if there's an issue on the line, we've got to send somebody to physically climb around that equipment, and you've seen how big that gets.

JUDSON ALTHOFF: Yes. It must be like finding a needle in a haystack.

DAVE PENRITH: Yes. But let's take a look at how this works. Let's go look at the plotter.

JUDSON ALTHOFF: Remind me again, what's the plotter?

DAVE PENRITH: A plotter's the part of the system that extrudes the soap before it goes off to be cut and shaped.

JUDSON ALTHOFF: Got it. So, pretty critical to providing high-quality soap. And you've effectively put a sensor fabric over the entire line, so that you're using IoT capabilities and Azure to feed a huge data estate, reasoning over that with machine learning.

DAVE PENRITH: Yes.

JUDSON ALTHOFF: Via the optimized algorithm.

DAVE PENRITH: Yes, that's correct. And that's where the machine learning algorithm learns from the history. And we knew that the critical parameters on the plotter were these three variables. On the top left, you see the actual speed. You see the barrel temperature there in the middle, which is the barrel, and then the temperature of the screws running through it. And now where we are is the digital twin actually controls those parameters in real time using advanced process controls to ensure that consistency.

And with this technology, we can find lots of needles in lots of haystacks.

JUDSON ALTHOFF: That's awesome. So, I think it's important for everybody to know, this isn't just about monitoring, this is actually real-time control of the operational line.

DAVE PENRITH: Yes.

JUDSON ALTHOFF: So, what's the impact been, Dave?

DAVE PENRITH: It's been truly phenomenal. Early on in this, we realized about €2.5 million of savings, and that was across many areas. It was across quality, it's across energy, it's across material and materials waste, and we're seeing productivity going up 3 percent as a result of that.

JUDSON ALTHOFF: So, you introduced this technology to the factory, and people who have been doing this their whole lives, what was the reaction from the leaders and the operators at the factory?

DAVE PENRITH: That was a real funny and sometimes unexpected result. We started this pilot nine months ago and then we switched control over. The operations team in Valinhos, they wouldn't let us switch it off.

JUDSON ALTHOFF: So, it was effectively the pilot that just kept on going.

DAVE PENRITH: Yes, it sure is.

JUDSON ALTHOFF: That's awesome. Great. So, what's next for the digital twin work?

DAVE PENRITH: Well, we're currently streaming data from 15 factories and we're going to connect another 70 factories by the end of the year, and there's lots of opportunities for twinning in there. This will expand across all of our product groups of home care, beauty, and personal care and food and refreshments. So, we're going to be covering everything here from soap to soup.

JUDSON ALTHOFF: That's awesome. So, awesome impact to the operations itself. How has it actually impacted the people? What do they see coming off of the twin?

DAVE PENRITH: Two real game-changers for us have been Power BI and Teams. We're a big company, we're a big manufacturing company, we measure a lot of things, and we've got a lot of scorecards. But we always think that's backwards looking. It's cold data for us. What Power BI has enabled is for everybody to look at both historical data and live data with a level of real-time intelligence. More importantly, in a format that's useful for them for the problem they're trying to fix. And all of that is accessible from within the Teams platform.

JUDSON ALTHOFF: That's awesome. So, can you give an example of what an operator might look at?

DAVE PENRITH: Yeah. If we look at this dashboard, this is our alerts dashboard. So, in a large factory such as Valinhos, that could be 3,000 alerts a day. And if you imagine each of those could take maybe two minutes to look at and resolve, they're pretty busy people.

JUDSON ALTHOFF: For sure. So, of course, loss of money, loss of productivity, but also probably a fair bit of frustration.

DAVE PENRITH: Exactly. And what we were able to uncover in the data was that many of those alerts were not the same priority, so we were able to prioritize it. And as a result, we were able to reduce the number of critical alerts by more than 90 percent to date. And you can see that here on this dashboard that you can filter on the severity type.

And the added insight that we got is the number of alerts was also declining because the digital twin was enabling us to continual learn about the operation.

JUDSON ALTHOFF: That's awesome. So, it's a real virtuous cycle. We talk a lot about a digital feedback loop, and you've really brought that concept to life. You started, of course, with this notion of optimizing the operation, but then very quickly pivoted into empowering your people to leverage that so they're not spending cycles on mundane work, getting right to the problems that matter, and it's actually allowing you to create a better product as a result of it. And then, of course, deliver the promise of the Dove brand back to the consumer. And consumer expectations are changing pretty materially these days.

DAVE PENRITH: Yes, they are. And for those consumers, they're demanding brands with purpose. And that for us is about sustainability. We've got a goal to be carbon neutral by 2030. So, we take energy consumption really seriously at Unilever. And I can show you an example of that feedback loop that you mentioned, Judson, is this one on here. So, on this dashboard, there's four factories around the world sharing real-time data on energy usage.

So, as you can see there, our Mannheim factory in Germany started to really decrease their energy usage last October.

JUDSON ALTHOFF: So, you could basically look at this trending and understand best practices across the different factories? How did you put that to work?

DAVE PENRITH: That's right. And this scenario really happened. What this allows us to do using this dashboard with Power BI is create a sense and drive a sense of curiosity in our people. And then this resulted in a conversation between the two factories about how they achieved it.

JUDSON ALTHOFF: That's cool. So, what did they end up doing as a result?

DAVE PENRITH: The net result for this is they looked at all the motor drives in the factory and they swapped many of those out to variable frequency drives, which are much more efficient uses of electrical energy to drive motors. So, we ended up with some improvements that were good for the environment and good for the bottom line also.

And it's also about learning from each other. And we call that the "multiplier effect" in here.

JUDSON ALTHOFF: That's really cool. I remember when I had the opportunity to meet with Alan Jope, your CEO, he spent a lot of time talking to me about how Unilever's a purpose-driven company and how there's this focus on bringing sustainability into the product. This is a real-world example about how you're able to use the system to actually teach other factories how to actually achieve on that goal, which is just awesome.

So, I noticed your Power BI charts are all embedded in Teams. Do you want to talk about the collaborative fabric that you've built here?

DAVE PENRITH: Yes, so for us, Teams is the place where our operators, process engineers, maintenance people, and managers -- they all collaborate there. For engineering, we've got more than 2,000 engineers in our We Are Engineers! Teams site, and they all use Teams every single day. And more groups are coming on board.

For me, personally, I'm a real believer in connected people. Once you connect the people, I find that the problems take care of themselves.

JUDSON ALTHOFF: Absolutely. You have literally thousands of people working in these factories, how did you train them on all of this new tech?

DAVE PENRITH: What we did is we used digital boot camps. So, we're starting to roll them out, and we used the full suite in there. We used Teams, Power BI, Flow, PowerApps -- all in there. And the big difference is many of those forums would have

been face to face. So, not only are we getting all this rich information and insight, we're creating a real culture shift.

JUDSON ALTHOFF: That's awesome. So, is it working? Do you feel like it's really having an impact on your people?

DAVE PENRITH: Personally, I really do. But rather than listen to me, why don't we invite somebody on that you met while you were in Brazil. I'd like to welcome Fernanda on.

JUDSON ALTHOFF: Awesome. (Applause.) Hi, Fernanda.

FERNANDA: Hi, Judson.

JUDSON ALTHOFF: So good to see you again.

FERNANDA: Nice to see you again.

JUDSON ALTHOFF: Welcome to Inspire.

FERNANDA: Thank you.

JUDSON ALTHOFF: Thank you so much for being here. Look, when I was in Valinhos, I was just blown away by the Dove factory. But I was also pretty happy to learn that you also make ice cream there as well. I met your colleague on the Dove side, and you on the ice cream side. Why don't you tell us a little bit about your work?

FERNANDA: Sure. First of all, I'd like to say that I'm not a native English speaker, and it's my first time speaking to so many people, so I'm trying my best.

JUDSON ALTHOFF: How about a warm round of applause? (Applause.)

FERNANDA: I started Unilever five years ago as a technology intern, and now I'm a process engineer just like Myara (ph). She works with Dove. I work with ice cream. She would love to be here, too, but she just had a baby, so I'm here to represent us and tell you about how we're using technology.

JUDSON ALTHOFF: Well, I think we all agree Myara's in the right place with her daughter and you're in the right place here to share all of this with us. Why don't you tell us a little bit about what life was like as a process engineer prior to all of this new tech being introduced?

FERNANDA: Yeah. We had a lot of quality checks to do to ensure we were going to deliver high-quality products to our consumers. So, our operators needed to do the quality checks on paper every day, and every batch.

JUDSON ALTHOFF: That's a lot to haul around every day.

FERNANDA: Yes, it's hard. And then, we would transcribe it into an Excel spreadsheet. I mean, it's not environmentally friendly. We were always trying to solve problems in a reactive way, and there was no added value activity in doing that. So, we needed to change that.

JUDSON ALTHOFF: How has the tech made a difference?

FERNANDA: At the boot camp, we saw PowerApps demos, and we decided that we could definitely create apps to help us. So, I have an example here, but I need your help to do this with me.

JUDSON ALTHOFF: I'm not sure I'm terribly qualified, but we'll give it a shot.

FERNANDA: Yeah, you are. It's pretty simple. I'll help you. Just pick up a bar and let's get started. We're going to assess five quality characteristics.

JUDSON ALTHOFF: Okay, so I've got to get five things right.

FERNANDA: Yeah: Fragrance, color, shape, logo stamp and sand. Ready?

JUDSON ALTHOFF: Yeah. I'm a little nervous.

FERNANDA: First question's on the perfume. How do you feel it is?

JUDSON ALTHOFF: Smells pretty nice to me. Is that one of the options?

FERNANDA: Good.

JUDSON ALTHOFF: Okay. Good. (Laughter.)

FERNANDA: Okay, good. (Laughter.) The color, now.

JUDSON ALTHOFF: That's pretty exciting.

FERNANDA: (Laughter.) Yeah, I can see that.

JUDSON ALTHOFF: This one, my wife would make a tremendous amount of fun of me because she says I can't tell color at all. I think it's really a nice shade of white.

FERNANDA: Yes. So, right. Good.

JUDSON ALTHOFF: Two for two.

FERNANDA: And the sand, now. I got you.

JUDSON ALTHOFF: Yeah, sand and soap. You do have me. How would I tell sand quality?

FERNANDA: Just feel it in your hand. Is that smooth?

JUDSON ALTHOFF: It doesn't feel sandy. It feels pretty smooth to me.

FERNANDA: All right.

JUDSON ALTHOFF: That's good, then? All right. Good, good, good.

FERNANDA: Perfect. And the shape, what does it look like?

JUDSON ALTHOFF: I'm going to go with oval. What do you think, oval? Will all of you help? (Laughter.)

FERNANDA: Everybody knows Dove is oval. Okay, so good. And the last one, logo stamp.

JUDSON ALTHOFF: I think it looks like a pretty good Dove to me.

FERNANDA: Yeah, it's good.

JUDSON ALTHOFF: Good, good.

FERNANDA: Perfect. Last thing is to take a picture.

JUDSON ALTHOFF: Okay. Here, wait. I should have done my nails this morning. (Laughter.)

FERNANDA: All right.

JUDSON ALTHOFF: Awesome.

FERNANDA: And when it's submitted, it goes to the cloud.

JUDSON ALTHOFF: Fantastic. So, a simple mobile app allows you to run the factory floor, do quality checks much more efficiently, much more consistently than hauling paper around, plus there's no transcription. Everything's automatically uploaded to the cloud.

For me, I think the cool thing though, Dave, is what you can do with Computer Vision tech. One of the things I talked about earlier was this notion of enabling a professional dev -- an elite developer -- to empower citizen developers like Fernanda. So, you can take Computer Vision and implement it in this mobile app so that all of that qualitative

response that a very junior quality engineer was trying to describe, and instead of just saying, "Good, good, good," or, "Fair, bad, poor," you can actually have Computer Vision print an algorithm to what good really means, analytically, so once again improving the quality and the outcomes. And it's just fantastic, in my view.

So, really cool stuff, awesome that you've built a PowerApp. Tell us what the impact has been on your career.

FERNANDA: Well, for my career, it's awesome because I can see that the operators are motivated about it. We don't need paper anymore. We're saving people's time to develop a job. And Valinhos' team is really excited about going further with digital and with technology.

And for me, the more important is that I'm part of all of this stuff, and I'm helping to create a different way of working manufacturing, and changing mindsets.

JUDSON ALTHOFF: That's awesome.

FERNANDA: It's great.

JUDSON ALTHOFF: Congratulations. Thanks so much for being here, Fernanda. (Applause.)

FERNANDA: Thank you for having me. (Applause.)

JUDSON ALTHOFF: Very, very well done.

FERNANDA: Before I leave, I have something to say. As a treat, I brought ice cream for everybody to enjoy. It's Ben & Jerry's, and it'll be available for you all when you leave the stadium and go back into the hot sun. So, I hope you like it.

JUDSON ALTHOFF: Awesome. (Applause.) I think you might just get invited back. (Applause.)

FERNANDA: (Laughter.) Bye.

JUDSON ALTHOFF: So Dave, look, it's amazing, the work you're doing, and I do have to just remind everybody for a moment that what you just saw is not just a set of demos, this is actually live work that's running in factories today and you're going to roll it out around the world. You truly are democratizing digital at scale.

DAVE PENRITH: Yeah.

JUDSON ALTHOFF: Look, we're in a room full of Microsoft's best partners, and I know that you believe passionately that this work doesn't happen alone. It happens through great partners building upon the Microsoft platform. You had actually six

different partners involved in the creation of this digital factory. And for me, I always say none of us is as smart as all of us, and when you can put the minds of Microsoft partners together with the platform capabilities that we have, the results are just enormous.

And there was one partner that really stood overall and really led this digital factory work, a partner called The Marsden Group. And we're very fortunate to have with us Andy Pratt, the CEO of Marsden Group. Andy, welcome to Microsoft Inspire. (Applause.)

ANDY PRATT: Thanks a lot, guys. Appreciate it. Thank you. (Applause.)

JUDSON ALTHOFF: So, Andy, listen, thanks. That was awesome. You've built a fantastic solution in true partnership with Dave, and I think everybody's pretty blown away by the work that you've done. Look, I think everyone in the room probably wants to know a company has 100 people, how did you get involved with Unilever? How did this get off the ground?

ANDY PRATT: Yeah, well, wild ride. So, Dave met some of our oil and gas partners, and with the work we're doing there on the digital rigs. And next thing I know, I'm in a meeting room in London at the Microsoft HQ with the whole team. And then, Dave just suddenly stands up and he says, "I want a digital twin of a factory in Brazil, and you have six weeks."

And everyone, like even the Microsoft team, was trying to look on the floor. No one wants to make eye contact with him. He's looking at me, and my guys are looking at me, going, "Don't do it." (Laughter.) So, it was just like, "Okay, let's go." Two days later, we're on a plane to Brazil working with the incredible Valinhos team.

Six weeks later, we're on a plane to Seattle and we have the whole Unilever board, the Microsoft execs, you're obviously there. And we presented the full twins. We had it streaming real-time. We had the first models predicting on those extruders and plots, as you saw. We even put it in the HoloLens, so it was like a hologram on the table. And yeah, as you can imagine, once that train left the station, it's been a pretty crazy nine months.

JUDSON ALTHOFF: Wow, that is awesome. Well, fantastic work.

Dave, how about you? Why did you choose The Marsden Group?

DAVE PENRITH: Ditto. (Laughter.) So, I would say the first one is speed. Andy's just said what we did in six weeks. That was an amazing response to that. A real big one is the diversity of thinking that Andy and the Marsden guys bring. It's a different industry they've worked in before, and I mentioned before over the other side that we've looked to ask ourselves different questions, so get someone from a different industry.

And I think the energy they bring, you'll pick that up from Andy as he goes (laughter), is amazing. And the overall experience for us has been one of real positive disruption. It's been fabulous.

JUDSON ALTHOFF: So how did you deliver it so quickly, Andy? Or are you not going to share that?

ANDY PRATT: Here's all our secrets, guys. Everybody get to work. (Laughter.) But no, I think the most important thing was building on the what the factory teams are already doing, not trying to come in with this perfect -- you know, you've met the Valinhos team. They're incredible. They are pushing ahead on all fronts.

And so, our job was really just to try and get in there and unlock the art of the possible with what some of this newer tech's capable of doing, and show them how fast you can actually do. I mean, we literally designed and manufactured a sensor pack at our R&D facilities in Houston and put it on a piece of equipment in that six-week window.

But I think the real magic happens if you get a bunch of their subject matter experts and the engineers in the room, and then you show them their data come to life predicting stuff, and then when you go and put it on top of a piece of equipment and let it control it, everyone's eyes go, and next thing, they want to do everything in the factory -- every piece of equipment. And so, then it's about getting in the trenches.

And I think our team's job was just about we've got to get the complexity of the technology out of the way, and then turn it back to those guys and just let them run with it. And I think the amazing thing is seeing it repeat now, you know, as we do the boot camps, as we do more and more factories. So, it's been great.

JUDSON ALTHOFF: So what's next for the two of you? What are you guys working on?

ANDY PRATT: Oh wow. I think the first thing we're doing now is it's about getting the scale out, you know? It's like one factory works. They're like, "Seventy, this year. Let's go." So, it's about getting the scale out. That's been exciting. And then, on to the wider network. Most of our focus is now really pushing the intelligence of the twins. One, we want to see how smart we can get these things, controlling a lot more of the processes, like you saw with the ATC.

But I think most of the energy's actually going in how do we take the intelligence and actually augment the operators, give them those insights. And so, one of the really cool things we've got going on is the Dynamics planning engine, trying to work out how it can meet quota, utilize other lines in the factory and free up assets for planned maintenance. And it's just like the perfect opportunity for Dynamics 365 Field Services. We'll add that work order in there, bring that line down, and then everybody can kind of get to work.

JUDSON ALTHOFF: That's awesome. So in many ways, you've done a lot of the hard work, and the sensor fabric, the IoT flow, building out the data state in Azure, and the machine learning models, and then laying the scaffolding of Dynamics 365 over the top of that is a great next step.

So, what benefits, Andy, do you get from being a part of this larger ecosystem?

ANDY PRATT: Yeah. I mean, for us, there's only a hundred of us, right? And there's a lot more of them and there's a lot more factories, so it's about the acceleration and the scale of the things that we're seeing very effective, and just being able to work on consistent tool sets, consistent platform

Even in Valinhos, Daniel, he's just got a two-man band, this amazing automation partner. And within hours, we're in the conference rooms, both our teams developing IoT Edge modules, and then pushing them out into the factory same day. So, that speed's amazing.

And then, you've got the wider system with Jane and the bigger partners working on the massive infrastructure, and the incredible ETS organization and what they're doing. So being able to just fit in that ecosystem and know we have the speed, and we have scale support is just fantastic.

And then, the stuff that's now happening with ODI, I keep like begging, can't wait to get my hands on it because just getting that standardized and the schemas integrating models, all of that's just going to -- you know, we can go faster and just focus on getting the value out, and not all this plumbing that we've kind of been fighting with.

JUDSON ALTHOFF: Yeah. Look, we're making great progress with the Open Data Initiative. Unilever's been really cutting edge with the concepts, the work we're doing with Adobe and SAP, but then, of course, because it's open, having your data be a part of it. So, what's it mean for you, Dave?

DAVE PENRITH: I'm really looking forward to seeing the results of that ODI initiative, because I think that can be a reel of luck, from looking at the data streams in here, a reel of look. I'm really looking forward to it.

JUDSON ALTHOFF: That's awesome. Well listen, I can't thank you guys enough for the work that you've done. You have really, truly done something special here. The outcomes that you're driving with digital capability are really, really best in class. I'm humbled to have the opportunity to travel the world to see a lot of solutions. This is really one of the most impressive ones I've seen.

For me, the most impressive part of it is just how you've engaged people in the process because it's a winning formula. And I'm convicted that you're going to see great success with it. So thank you, both. (Applause.)

DAVE PENRITH: Thanks a lot. Appreciate it. (Applause.)

ANDY PRATT: Thank you. (Applause.)

JUDSON ALTHOFF: I want to talk a bit about how this solution came to life because, look, I think it's really important for us all to embrace a formula for success. If you think about it, it's really a journey. It's really a journey. There was no signature move at Unilever that created instant success.

In fact, if you listen to Dave and you hear him unpack his story, it's really about iterative refinement. In many ways, the solution itself is never really done; so, creating that minimum viable product, getting value, having the pilot create impact in Valinhos, and then optimizing the same so that it could be rolled out across many, many different factories at global scale.

Look, I want to unpack this for all of you because, if we're truly going to democratize digital, we have to all embrace this. It has to be a shared aspiration. And for me, it begins with this concept of value generation. Again, as you heard Jane Moran in the opening video for Unilever talk about it, Unilever's a purpose-driven company. For them the mission that Alan Jope, their CEO, put them on, it was about creating a sustainable product at scale. So having that purpose, that value generation, having that singularity, is super critical in all of the work.

From there, there were really four key things that Unilever brought to life, and I encourage all of you to take this consultative approach in driving digital solutions with your customers. You have to first start with vision and strategy. And sometimes, believe it or not, this can be hard with your customers.

Trust me, I speak to hundreds of customers every month in Microsoft's EBCs. And when I do, there's so much energy around saying, "Well, gosh, Judson, how can we take advantage of IoT? How can we take advantage of the Intelligent Edge, the Intelligent Cloud, all this great new capability that's coming up?"

You actual have to slow people down and say, "For what purpose?" This idea that you're going to simply throw technology at the wall and see if something sticks without having a crisp vision and strategy outlined will certainly lead to less optimal results -- let's put it that way -- if any success at all. Helping the customer through understanding what is their vision, what is their strategy, what will the company look like three, five years from now if you make all of this happen, if you make these investments.

And the next thing you have to really focus on is culture. Culture is what people do when they're unsupervised. If you look at the work that Dave did at Unilever, the technology solution that he built was 100 percent aligned with Unilever's culture. They're a people-first company. Empowering their people was critical to their success, enabling the digital twin to have direct impact on the frontline workers, staying true to the mission of building that sustainable product. It was easy for people to adopt the technology because it was 100 percent aligned with their culture.

Then from there, you can think about this notion of unique potential. You can really lay into a set of constructive hacks and co-innovation and co-development, producing this minimal viable product to find that unique potential from within a company. And this is where we're counting on all of you to bring your skills, your capabilities, to find that solution ethos to help the customer really nurture their unique potential.

And then, finally, it rests with capabilities. You saw how Dave's job really wasn't done until he ran the clinics. He taught Fernanda and her team how to leverage PowerApps and Teams to make sense of the Power BI data coming off the advanced machine learning algorithms, investing in that tech intensity, equipping everyone with modern skills.

So, it really is, at the end of the day about people and technology, empowering people with the richest assets that our ecosystem can provide: Our technology portfolio, your skills, how we bring them to life for an ecosystem. People and technology are at the core.

I want to talk about the technology for a moment. Look, we're at the precipice, the very beginning of this paradigm shift in compute, the Intelligent Edge and the Intelligent Cloud. The Edge will only become more powerful and more capable of reasoning in real time. You see it in almost every example that we have.

It used to be thought that hybrid compute was some sort of transition period until everything was 100 percent running in the cloud. Now the modern architecture's richness at the Edge and leveraging the power of the cloud, and this connectedness of the two enables us to innovate fantastic new solutions that really are at the heart of this notion of democratizing digital.

Our solution areas, they provide that fabric, the fabric of harnessing this new compute paradigm. From gaming all the way through to data and AI -- and yes, gaming is critical for us, not just because we want to have the richest gaming experiences for consumers around the world, because gaming actually teaches us a lot about the cloud. In fact, some of our most demanding customers -- demanding Azure customers -- are our gaming studios.

If you look at the announcements that we've made with xCloud, we're truly capturing the power of the Edge and the power of the cloud, and unlocking two billion gamers across a mobile ecosystem, leveraging this very paradigm shift. And then, when you think about modern life and modern work, these two are so interwoven. People don't want a different technology sets in their lives than they use at work. And Microsoft and modern workplace capabilities and all of the partners that deliver enriched experiences in this area truly can harness this work and life technology together.

And then, business applications, they have to flow. They have to flow in the same sort of UI scaffolding, the same ease of use. They have to be AI empowered and driven in the same way because this idea that you're somehow going to have these rich mobile

experiences, these modern apps, and then you're going to turn to an archaic ERP system or CRM system is just nonsensical. So, the AI-infused business applications capability is critical.

And then, core apps and intro, this massive move to the cloud creates huge economic opportunity. Not only do you lift, shift, modernize and refactor applications, but savings that you create that then can fuel further innovation is just tremendous for all of us.

And then, of course, data and AI, my personal favorite because I believe data's at the core of all modern solutions. In fact, there is really no such thing as artificial intelligence without investing in the data because the system can be no more intelligent than the data over which it reasons.

These solution areas come together to really ignite the paradigm that will really be the future of computing at the Intelligent Edge and the Intelligent Cloud. And to a number, all of our solution areas will get better in FY20. The innovation that we're bringing forward is simply fantastic. You're going to see more collaborative capabilities in Teams, more AI capabilities enriched in Teams, differentiation by industry, investments in security and compliance, true richness in the modern workplace.

Our business applications will have AI out of the box, mixed reality capabilities, open data, common data models for which you can innovate on top of them and unlock new business solutions at scale.

In apps and infra, we're going to invest in IoT and we're going to invest in hybrid capabilities. And DevOps has really got to be, for us, something that we all work on together because it is really what unlocks this notion of democratizing digital and empowering developers. GitHub is a first-class citizen for us here at Microsoft.

And of course, in data and AI, you're going to see just some fantastic things. We're going to bring you limitless data, unlimited analytics. HoloLens 2 will come to market. Mixed reality services will be open and available for you to innovate on top of and inherit in more solutions. And of course, our AI services will become richer and more powerful so that you can bring the future forward and enrich the work that people do.

There's no question that the Microsoft Cloud is differentiated because of our four solutions areas, because of the richness of our offerings and the fact that you've invested by solution area to deliver this capability to market will differentiate our partner ecosystem above and beyond any other in the industry.

So listen, I want to really bring home why I passionately believe we can democratize digital together. Let me tell you why, because you're doing it today. And I'm going to take you on a small tour around the world to talk about the solutions that really inspire me, based on the work that you have done.

I want to start first in Spain where Juaño, a Microsoft MVP, a developer, also a person who is blind, and his wife, who is also blind, take care of their four-year-old child. Simple things that you and I take for granted, like crossing a street, the question that need to be asked and answered -- is it paved, are there potholes, are there cobblestones, is there a ramp? Now, amplify that on top of life experiences, like I want to take my child to school, I want to take them to a game, I want to travel, I want to experience the world.

And enter our partner, Moovit, who's really advanced the capabilities and mobility of this as a service for accessibility. They enable Juaño and his wife to take care of their child to make complicated things easy. And it really is a fantastic example of the few helping the many. Moovit's a very small company, yet they've already impacted the lives of 400 million people around the world in 2,700 cities in 90 countries; the few empowering the many with democratized digital.

Now, I want to take you to Kenya where Monica, the farmer, and farming is not just how she takes care of her family, it is also her livelihood. Water is scarce. For her, it's delivered by hand, and hand farming and taking care of your animals is really not only labor-some. She spends more than 17 hours a week fetching water. It's also highly inaccurate, and the yields are terrible.

Enter our partner, SunCulture, who's helped her deliver solar-powered irrigation to her farm. Her crop yields are up 300 percent. Her income has increased tenfold. Not only can she provide for her family, she can provide for her community. We are truly enabling everyone to participate in the digital economy. That is what's democratizing digital.

And I want to take you to Canada, with Dr. Havi (ph) James and Dr. Q (ph), who work at Toronto's University Healthcare Network, are revolutionizing cancer treatment. They have a theory that says if you can take millions of cells -- millions of cells -- and cross-reference them with tens of thousands of different tests and clinical trials, you can actually prescribe a personal cure for cancer for a patient, highly accurate. The challenge is, is that it takes months and months to actually reason over that data.

Enter our partner Eridate (ph), who's connected the network of labs, enabled labs to share data. They have now taken the laborious task, what used to take months and months to do, and delivered it in just days. This can save lives, lives at scale. And frankly, this is what I mean by when I say we can actually put technology to work to eliminate the mundane tasks, eliminate mundane tasks so that people can focus on what matters most.

And then, I want to take you to Peru and to my friend, Eugenio. Eugenio had a dream of creating a market and having a market in his local town in Peru. But he's one of the over two billion people that the world considers to be un-bankable.

Enter Mibanco and our partners, ITG Solutions and (Jussian de Sistemas?). They actually can bring banking to the un-bankable. ITG focused on enabling Mibanco on Azure, and Jussian helped Mibanco build their mobile app that empowers Eugenio not to

just get a loan for one market or two markets, but to actually open up three markets because of the intelligence and telemetry in a platform that helps Mibanco's loan consultants enrich Eugenio's life. This is bringing a digital experience to everyone and empowering everyone to benefit, everyone to benefit.

I then travel to our last stop in Premia, India where Mani, Mani works in a mill called PV & Sons. His job, his job before technology and this digital revolution, was to manually inspect all of the grains in the mill. Just a handful of toxins can destroy profitability for PV & Sons and put hardship upon all of those who work there. But worse yet, ruin the food supply for an entire village.

Enter Burah (ph), who builds massive scale grain-sorting machines that the world can afford, and our partner, Codic (ph), who's brought computer vision technology to Burah's equipment. Again, the elite devs bring their capabilities to the citizen developers so that Mani's jobs has changed. Mani is now a computer vision specialist and his work has been enriched. His work has been enriched so that he can not only do his job effectively, but truly experience democratizing digital.

So why do I think we can do this? I think we can do this because you are doing it today. I want this to be our shared aspiration. It's deeply meaningful for me; join me in this journey. Let's democratize digital and empower everyone to have a digital experience, and enable everyone to participate in the digital economy.

Thank you. (Applause.)

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