So, we have got a bit of a rock star, I reckon, in our midst. Haben Girma is here to talk with Paul Walsh from Lenovo.

PAUL: I'm not the rock star! You've got to save that. I'm not the rock star. I'm Paul Walsh, the Chief Digital Officer at Lenovo. We're really excited to be partnering with AbilityNet. I'm trying to bring this whole venue and session together. It's extremely important to us as we think about, you know, disruption that is happening across the globe and as we think about the innovations that we have seen within technology. If you do think about that digital transformation that's happening, you will see it is happening across every sector that we can think of, whether it be retail, financial services, healthcare, all of these areas are being disrupted through the advancements in technology. It's important for us all to think about how do we ensure that we deliver, you know, much smarter technology for all, for everyone, to ensure that it is inclusive no matter what gender, ethnicity, or if there is disability that we are actually thinking about all when we're building our technologies, not just technology for technology's sake.

We have made many advancements. Think about all of the ways that you shop today or you bank today. How many of you carry your bank around in your pocket? I know I do. It allows me to be able to think in a different way, act in a different way.

What we have seen is just a growth in three areas specifically that we're really thinking about and looking at. We're going to talk a little bit about them. One of them is around a cognitive commerce and the growth of patterns or the growth of data. I heard in a session earlier on a lot about data and the impact that data is having. In 2020, there will be 44 zettabytes of data on the planet. One zettabyte is ten to the 21, or if anyone is as old as me, one zettabyte is the equivalent of 250 billion DVDs! 44 zettabytes date that is going to be on the planet in 2020. 90% of that data was generated in the last two years. The vast majority of the data is tied to an IP address. 44 zettabytes of data, because we're in London, 44 zettabytes of data are approximately 100 million printed copies of the British Library. There's a lot of data in there. It is not just about the amount of data, it is literally understanding the patterns within that data, the ability for us then to utilise those patterns and build great outcomes for all. What we have seen in those patterns or as we are building our AI systems we are thinking of mainstream and we have not been as inclusive as we need to across industries for everybody to ensure that all can benefit from this digital transformation that we're going through.

All of this data is being generated by a growth in connected devices. In 2020, there will be 25 billion connected devices. My wearable, my phone, all generating data, connecting to all of your wearables, connecting or generating data to the extent that it is really disrupting all of these industries we talked about. The ability to walk into a store, a cashier‑less store and pick up whatever it is, whatever product you're looking for and be able to walk out of that store is now a reality. When I was growing up in Dublin it was called stealing; now it's called a customer experience! About 13 years ago, however, when myself and a couple of my colleagues put the patent together for in essence a cashier‑less store, or as we called it "the ability to conclude a transaction based on a geographical location", we were thinking how do we make it work for everybody. How does it understand it is me? It is able to give me contextual relevance when I'm within the store and it allows me to pick up that good and I walk out. We have heard stories about facial recognition not working for many different parts of our world. We need to fix that. We need to make sure we deliver that for everybody. If we don't, we will see a digital divide. We are seeing elements of that digital divide already but that will be expanding.

The second area that people really have to think about is how do they move technology to the back? How do they make it invisible and take it out of the way to ensure we are delivering the real experience that we're all trying to achieve? If technology gets in the way, it hinders your customer, your user. The problem that that can actually lead to then is that those loyal customers today become your former customers tomorrow. As we're thinking about and partnering, we're always thinking about how do we remove technology and make it more seamless, put it in the background.

Let me give you an example. You know, I travelled over for this event like many of you. It's a long flight, I flew in from Seattle. It is a long flight. I just wanted to get to the hotel room but I walk into the hotel and there's approximately ten people deep all trying to check in. The question, I was asked was would I like a digital key. Would I like it? I am thinking this is fantastic, a digital key!

So, they send a digital key to my device. As I walked away, they said, "Wait there, let me give you a regular key just in case." This had been a long flight. They didn't know my patterns if they did, they would have put me closer to the elevator. So, I get on the 10th floor, I have two bags, I really want to get into my room. I take out my device and wave in front of the door expecting it to open. It fails. I tried it again, it failed again. I took out my plastic card and I tried to utilise that, that didn't work.

So, ten floors, back down again. Three more people in front trying to check in. I asked them what was going on, I really need to get into my room. I can't get into my room. They said, "If you use the digital key, it deactivates the plastic one. The only way to use the digital key is to connect it to the network.” No-one told me you had to connect to the network!

This is a prime example of if we don't think of the end-to-end experience for all, the impact it can have. The idea was a great idea but it was a really bad experience. That is just within a mainstream environment. When they are not thinking about the end-to-end experience for a disabled environment and then it gets worse. And we truly have to look at all of that end-to-end.

The third thing that we need to think about is really around co-creation, how can we build together? How do we ensure that together we can actually deliver the right experience? I think of this as an omnichannel across the brands, where the brands are working in order to deliver a true end-to-end experience.

An example is the partnership with Intel, building together a solution, some years back for Stephen Hawking, to ensure we could provide a richer experience for what he was looking for, trying to do. Imagine if we could not work together to deliver that experience, not giving Stephen Hawking everything he needed to educate us, it would have been a bad world. So, we are happy to do that. But as we are looking at it, we are thinking of the ecosystem in which we can work with many partners, many of you today, to ensure that we are building a solution and solutions for all, ensuring that we can actually deliver a more diverse and a dynamic world and a better human experience for all.

In doing that, we step back for a while and we thought about how can we deliver that, what do we need to do? I'm a part of the Lenovo diversity and inclusion board, we spent time thinking about it. The idea came out, why can't we partner with someone who is a true advocate, that can truly talk about and help us think about the solutions we are building, that can ensure that we are doing human design right from the initial thoughts of a product all the way through to bringing it to market and in-market.? I'm really excited to introduce Haben, who is our first Accessibility and Inclusion Adviser for Lenovo to really help us change how we think about inclusion and accessibility, to really ensure that we take the next step and deliver a much, as I said earlier on, a smarter technology for all. So, let me just introduce Haben and invite her up on to the stage here. Thank you.

[Applause]

Hi, Haben and Milo. Fantastic. Great, so, first of all, I think that the first question is maybe we should talk about the technology and how we are interacting right now and what it means about the technology being invisible?

HABEN: great question, Paul. I am Haben. On stage is Milo, my dog. I have a Braille computer on the lap. I don't have a name for the Braille computer. But the way it works -- I'll hold it up -- the Braille dots are on the bottom. I run my fingers over the dots to feel the letters. Those of you who know assistive technology, this is a Braille Note Epacs.

When I was growing up as a deafblind person in a sighted world, I faced numerous barriers. Most of the people in my world did not know Braille. My parents did not know Braille. Most of the people in my world do not know sign language. My parents did not know sign language, though they had dreams of studying it one day! I really wanted to be able to connect with people, all of us are social. All humans need a way to stay connected, so I kept asking myself, "What can I do? What can I do?" One of my strengths is my sense of touch so I was exploring solutions that relied on my sense of touch.

In 2010, this Braille Note came out with Bluetooth. I realised I could connect with a keyboard and that would give me the opportunity to hand the keyboard to sighted hearing people or people with disabilities and they could type and I would be able to read in real-time what people were saying. So, this solution opened up opportunities for me.

People with disabilities are always innovating new solutions. My communication solution is unique to me but it is not unique for people with disabilities to come up with solutions. That's kind of what we are celebrating today: design driven by disability and how disability can increase opportunities.

So, as Paul talks, or as we get feedback from the audience, I have a typist in the front row who is typing what is being said and I'm reading it on the Braille display.

PAUL: That is fantastic. Absolutely fantastic. Haben, I introduced you as our first Accessibility and Inclusion Adviser. Can you talk about two things, one, what does that mean for you? Also, as a technology company, what should we expect from Lenovo, and what should it mean, how are we going to change in how we are doing things today?

HABEN: Throughout history many organisations have ignored disability and I want to shift the dominant story from the dominant story currently, that people with disabilities are a burden on society. We're not but the dominant story based on ableism, it keeps isolating us. So, I want to shift to see disability as an opportunity for innovation.

People with disabilities are talented and we have been creating solutions all throughout our history. These are hidden stories. Very few people know about them. We need to get them out there so that they are more known.

I have explained one story of how I came up with the solution that would give me more access to conversations and information. There are many other stories like that out there. Sign language is actually a form of innovation. Deaf people, all around the world have created visual sign languages so that we can have access to communication. If you can't hear spoken language you can create a visual language. That's what communities have done, the dominant one here is British Sign Language, and in France, French sign language, in the US they have American Sign language. Deafblind people also come up with solutions. There is tactile sign language based on touch, where you can put your hand over someone's hands and feel the signs. There is print on palm, where you write letters on the palm. So, communities of people with disabilities drive innovation, they come up with solutions.

One based on tactile ... many, many years ago, around 1808, there were two friends in Italy, one blind, one sighted. They wanted to be able to send each other letters. This was back before email. Back before even Braille. And if a blind person wanted to write a letter, they had to voice it for a sighted person to write it down for them. These two friends could not use that method, they had to keep their letters secrets, they were love letters! So, they thought, "What an interesting design challenge, to come up with a way to write that does not require sight? They developed one of the earliest working typewriters. The typewriter, with it you can memorise the layout of the keys, feel it and type based on touch. That is one way to write letters. Now lots of people write letters on keyboards, some of the fastest typists are touch typists.

Disability drives innovation, love drives innovation too! So, there are lots of these stories throughout our history. If companies centre disability design they can come up with the next big thing. Increasing the hiring of people with disabilities is one way to help reach that goal. We are one of the largest minority groups, over one billion people with disabilities, so if a company increases hiring people with disabilities, it can tap into a very dynamic and innovated talent pool.

PAUL: Fantastic. Fantastic. I want to open questions up to the floor. Is there anybody out there that has questions?

MARK: If you can go via Slido. That is great. I have a question, I am interested in how you think change will happen in Lenovo, Paul, and from Haben's point of view, how she will influence you? What is that relationship looking like?

PAUL: The way that we look at it in Lenovo, there are two different elements, one it is cultural, right? We have to ensure that we are from a cultural perspective building inclusivity into our DNA in all that we are doing. It is not just after afterthought. If it is not really a part of your DNA, it doesn't become so seamless.

So, we are really, with diversity and the inclusion board, we are really thinking about all aspects, disability, minorities, gender, et cetera, so that has to be really brought in to it. We are spending a lot of time and effort in that.

The second area is, from, as we think about from ideation all the way through to the delivering of products and product sets is to ensure that we build them right the first time. How to think about the needs of all? Right? When we think of smarter technology for all. This is, as I said earlier on, this is the reason for having a great partner with Haben to ensure that we are doing it and thinking about it the right way, right. That we are doing it and looking, you know, seeing it in the way it should be. I have great, as part of the -- when I think about the entirety of the Lenovo team, I have great aspirations on where this will take us.

MARK: With that incredibly simple brief in mind, Haben, where are you going to start?

HABEN: The products we build and the futures we imagine for ourselves, a lot of people think of disability at the very end. It doesn't really lead to great design. So, if we can start by having positive disability stories at the beginning, it could influence positive designs. So, culture, stories will help more accessible products.

MARK: I will pick a couple of questions off the screen here. This is a question for Haben: What hasn't been invented yet that would make your life easier?

HABEN: Touch is a really powerful way to access information and I feel like there are so many possible ways to combine touch and technology to help people access more information from the environment, connect with other people so I would love to see more innovation in that area.

MARK: A related question: What barriers remain in your day‑to‑day life?

HABEN: A big barrier for me is digital services that are not designed with access in mind. Accessibility guidelines already exist. They're available for web developers and app developers but a lot of people are not following them. So, if I try to use a new app or service and there's a barrier, it limits my access to information. There are some things I used to be able to do in the past that I no longer am able to do. Some hotels have installed elevators that are not accessible to deafblind people. I used to be able to enter the elevator, read the Braille on the display, select the floor and get out. But now there's an inaccessible touch screen. I'm denied freedom of movement that I used to have. Sometimes technology can open doors and sometimes it slams them.

MARK: That's a great example. A really good one. Paul, you talked about the massive amount of data being created in the world in general. Does Lenovo have a plan for how it is going to use this data in this particular space in driving innovation?

PAUL: The first principle of data generally and how we think about it is obviously the security of that data, right, and making sure that we keep it highly secure and that we don't lose any of the trust of our customers that may want to opt in. What we have to really think about when we all think about data and when we think about this across all organisations is how do we ensure that we're enabling the data to have or provide our customers or users with much richer contextual outcomes? Being able to just provide them with the right outcomes at the right time. It is really how do you take identity and be able to tie that to location awareness and be able to drive and outcome. For example, the one I gave was within a store, not just ‑‑ let's say, Mark, you are a particular brand's top buyer online. You get a very personalised experience but when you walk into the store, they don't know who you are. Think if you have opted in to allow them to understand you're in that store and they can have a richer contextual conversation with you and even give you guided navigation even from a disability perspective around that store, think about the impact that could have on you. I think from our perspective, it's really how do brands work together to ensure that we are delivering together a richer outcome and that's what we're trying to drive towards.

MARK: Thank you. I've got a cheeky one here. I will read it so you know I'm not making it up: "Haben, let's talk about the juicy stuff. What about dating and inclusion? Have you tried any dating apps and are they accessible?"

HABEN: So, some of the dating apps out there have some accessibility features but others don't. If they don't have accessibility features it makes it harder for people with disabilities to find relationships and connect. I'm answering your questions from a technical perspective! [Laughter]

So, we want all services to be accessible to people with disabilities. Companies that are working on dating apps should make them accessible and the guidelines to build accessible apps already exist. Why not reach out to one of the largest communities? Over 60 million people with disabilities in America. Relationships are beautiful across disabilities, across disabled and non‑disabled so the more diverse we can make our communities and develop relationships, the better everyone will be. [Applause]

PAUL: We've got a lot of people here, a number of organisations here. Haben, here's a question that I know we have spent some time in Lenovo thinking about. I would love to get your point of view. Where do organisations need to start? In order to get the ball rolling, what do we have to be doing today if we haven't done it already?

HABEN: Start by hiring more people with disabilities! We're talented. We have advice and ideas to share. We don't want to be engaged with just at the end. We are customers but we're also designers and engineers and advisers so have us included in all aspects of the organisation.

I've had wonderful employment opportunities and also awful employment opportunities. I was told, "Work hard and you'll be successful and you'll avoid employment discrimination." But it touches even the most talented people. When I was in college, I did really well in school and decided I wanted to try seeking work, too. One of my friends told me, "I know a place where you can get a job: Alaska." I said, "Sure." We went up to Alaska. They were right; there is a lot of opportunities in Alaska because of the tourism in the summer. The employers even seek applicants from other states to try to fill those many roles. I applied to all kinds of positions, dish washing, filing, doing laundry in hotels, tactile activities. Fortunately, my parents made me do my chores so I was an expert in all of those activities! Despite all of my talents, the employers still didn't want to hire me. They assumed I wasn't competent. I was told work hard and you'll be successful. But if there is ableism and employers are assuming, we are incompetent, it becomes a barrier and the employers miss out on opportunities. Eventually I found an employer who took a chance and believed in my abilities. She hired me for a position doing the front desk at a gym in Juno, Alaska. My responsibilities were taking care of the cash register, managing the machines. One day a woman came to the front desk and said, "A treadmill is not working." I followed her to the treadmill and tried the on button, nothing happened! I tried the other buttons on the machine and nothing happened. I put down my cane and I felt the machine from top to bottom. On the bottom there was a switch, I flicked the switch and the machine went into life. The woman told me, "Oh, my goodness, I didn't see that switch." I told her that I didn't see it either. [Laughter]

Sometimes tactile techniques beat visual techniques. People with disabilities can show you new ways to do things that you hadn't seen before. So, increase your teams and increase hiring the people with disabilities. It will make the whole organisation more innovative and talented.

PAUL: That's great. We have a couple of minutes left. Let's see if we can get a couple more questions in.

MARK: This question: "Haben, how do you ensure that people or colleagues send you accessible digital communications? What is your strategy as a communication technique?"

HABEN: Ha‑ha! So successful digital communication, I do like using social media. Social media has not received many complaints over the years. As a deafblind people it has expanded the number of conversations, I have access to. Offline, I can't eavesdrop on conversations but on social media... I can eavesdrop on conversations and skim through the different conversations that are happening. So, tech, if it's done thoughtfully and accessibly, it can empower a lot of people.

To answer your question, through social media, Twitter, Facebook and Instagram, email, and messages, they are another way I get information. So, yeah, basic digital information.

MARK: Thank you. A final one: "How did you find writing your memoirs, any challenges or moments of inspiration that came up?"

HABEN: So, I wrote those stories specifically because they teach us something about ableism. Ableism is the idea that people with disabilities are inferior to the non‑disabled. We're not inferior but society thinks we are. So those stories, true stories from my personal life give people examples of ableism, ridiculous situations where I was denied access. Some were funny, some deeply moving. At the very end of my memoir there is an accessibility guide. If anyone feels inspired, they have easy access to steps they can take to make their organisations more accessible. The book is called "Haben: The Deafblind Woman Who Conquered Harvard Law". Now, with Paul, we're going to try to conquer Lenovo!

PAUL: That's fantastic. I want to say on behalf of everyone here, thank you very much for spending some time with us all. What we'd love to be able to do is take a few minutes maybe outside, if anyone has any questions and they want to spend a bit of time, please come and join us. Thank you, everybody, we really appreciate your time too. [Applause]