ROBIN: Good afternoon everyone. Welcome to this session on flower arranging. Whoops. Not this one. Inclusive travelling back to the smart moment of today. You're welcome to the session. I hope everyone is enjoying the Conference. I'm delighted to be joined by a distinguished panel of speakers. I'm going to let them all introduce themselves in a moment. I'm Robin Spinks senior innovation manager at RNIB. Coincidentally I happen to be a guy with low vision from the northern part of the UK. So, if you do raise your hand, I may not spot you. I'm not ignoring you. But if you need to get my attention, you can say Robin. There's a space for questions at the end of the programme. We're tight for time. We've got lots of great content to share. Thank you for coming along. I will pass the microphone to my left and let you introduce yourself.

EKATERINA: Hi everyone. I lead accessibility at Uber. I'll tell you more about my role later, but essentially, most of my time I spend managing our Uber access and Uber assist products but looking at the kind of process, the policies we have around accessibility and how we can make our app more accessible. Really excited to be here, thank you to AbilityNet to RNIB for putting this together.

MARC: Hello. Thank you for everybody to coming. Thank you to AbilityNet and everybody involved with TechShare Pro for having us. I'm part of the innovation through partnership team at RNIB. Again, we'll go more into our roles and what we do in a short time, but effectively we work across multiple market sectors to invoke a change within a particular industry. Personally, extremely passionate about raising the par of accessibility. I'm affected by sight loss. I've had a visual impairment since I was a kid. As have all my family, my dad, my brother. Also, my partner. We don't just attract each other, don't worry!

(Laughter)

Our house is quite an interesting place at times. But we both, myself and my other half, we both have polar opposite sight. We do effectively have one good pair of eyes between us, which works. One good part of our relationship any way. I'll pass over to John.

JOHN: Good afternoon everybody. John Worsfold RNIB. I'm innovation and technology implementation manager. Lots of words, but what does that mean? It means that within our team, innovation through partnership, we try and solve some of those big problems. That can involve research, prototypes, but inevitably, it means trying to create something that has some tangible difference. Today we're going to show you a solution that we think has got a tangible difference from the point of view of navigation.

ROBIN: Thanks everyone. Great. So, thinking about this bigger picture of the world that we live in and thinking about travelling and getting from point to point, there are lots of considerations to be gone through. So, I want to take us on a bit of a journey and think about inclusive travelling. Some of the key questions we're setting out to deal with are how can innovative collaboration with major transport providers and airports help to bring about a deeper level of staff understanding and improved customer experience? We've heard it many times in the Conference already that accessibility is a holistic endeavour and it needs to be about an end‑to‑end experience. It's not one or a number of segments of an experience. It has to encompass all of them. What might an effective and sustainable navigation experience feel like for blind and partially sighted people? Now I should add, we are a specialist agency for blindness and partial sight. However, we're expected to deliver services that are pan‑disability in terms of their approach and their compliance, for example. It's recognised that we've got a specialism, but what we're talking about isn't exclusively helping one particular group. What might a genuinely scalable option for business look like? We've struggled with this for a long time. We've seen various options that are infrastructure dependent or perhaps very heavily infrastructure dependent. The real question is how can we create something that's scalable and easy and cost effective to implement, but actually delivers a great benefit for individuals who are using the chosen service or location? So, let's talk about some of those collaborations. I'm going to pass the microphone over to Marc and the clicker.

MARC: I'll pass this over to you. God knows what we'll end up looking at!

(Laughter)

As part of our role within the innovation team, one of the most important parts of that is the engagement process. Like I say, we work across multiple markets and engage right across the board, travel and transport being one of the really, really important parts of what we do. Because partially sighted people rely on public transport to get from A to B. Now within that engagement process, we reach out to organisations and try to partner with them and make a real difference, but what we tend to find is that the people that reach out to us and actually have a need in the first place tend to be the best partners that we work with. We want to share a little bit about our relationship with Gatwick Airport. Gatwick reached out to us a good couple of years ago, about three years ago. They reached out because they had a desire, they wanted to be the best that they possibly can be, as an airport. Airports, I'm sure everybody will agree here, it's a challenging environment for anybody, let alone somebody with a disability. Gatwick have 60,000, so they call them PRMs, persons with reduced mobility, so people with multiple disabilities, they have 60,000PRMs a month travelling through Gatwick, which is absolutely extraordinary and that puts quite a strain on their resources. But they try and cope with it as best as they possibly can. If there's any blind people in the room and this is certainly my experience within, when I've been to an airport before, I've checked in, absolutely no problem. I've got some assistance checking in. Then the indicator comes and I mention something that myself and my partner are registered blind and then all of a sudden, there's an awkward moment. Then, at that point, two wheelchairs turn up.

(Laughter)

Then it's right, get in the wheelchair. No, no, we're fine. It's OK. No, no. That exchange makes things quite awkward. So, what we tend to find, what we did with Gatwick is we worked with them from the point of view to understand them as a business. There's no point in us as an organisation going into another organisation and saying ‑ this is wrong, this is wrong and let's work with you on this. We need to understand ‑ this is a relationship. We need to understand the road map of what you're trying to achieve and what we can help you do. The way we did that is that we very early on we laid out a memorandum of understanding, which there was multiple points in there of the things that jointly, we decided we wanted to work on over the next couple of years of the relationship. One of them was within the awareness side. Which is why I brought the example of being given a wheelchair. It may have got me through quicker. But I just want to crack on, like everybody else. That's just the way I want to be. What we did, we decided to go down the route of looking at awareness with Gatwick. That is really, really key. For us, as an organisation, again, our time is spread across multiple markets. If we can engage with an organisation and actually allow that organisation to understand what it might be like to live with a visual impairment and empower them with that level of understanding, then we don't have to suggest the changes. That organisation with their particular specialism will come up with those solutions themselves. They will feel empowered to do that. So, we engage, part of our engagement with Gatwick and the awareness side, we introduce them to one of the tools that we created at RNIB called eye ware. It's a free app. Before we go further, we heard yesterday about some of the immersive experiences and I think in the next couple of years that's going to get better and better. At the time, in an ideal world we would put everybody at Gatwick within an immersive experience and see what it's like to have a visual impairment from the point of view of audio, the visuals, everything that we can to give them that. What we had at the time was eye ware, an augmented reality app. It basically filters the, particular eye conditions over your, over the, on the smart phone, using your camera. Whatever the camera can see on the screen, you can select for multiple conditions. We engage with all, a lot of the hierarchy at Gatwick, including the CEO. We allowed them to experience in their own environment what it might be like to live with a visual impairment. We walked from the north to south terminal with a head set, which John's got in his hand here. They felt something. There was a real empathy generated from that experience. They were able to see what their environment looked like and felt like. Because we can talk about sight loss being affecting your sight, but it affects your whole being. It affects mobility, it affects everything. So that was a really big step for us. Ultimately what we did that eye ware was incorporated into Gatwick's core training to be part of what they do on an everyday basis and ultimately, we've trained 3,000 members of the Gatwick team using that tool. From that, we were able to have a real impact on the organisation itself, because now, at concept stage, accessibility is considered within every project that they do. That was because of what they felt and what they got from using Eye Ware. We chose, we've really spent a lot of time working with Gatwick because it's a challenging environment for all of us. If we can improve that for blind and partially sighted people it's going to be better for a lot of you in the room right now. Being in a challenging environment, it's something that we can play with and test in that it's an ecosystem in itself. There are multiple, I mean, there's Ubers going to the airport. There are trains going into the airport. There are buses going into the airport. But there's also a whole retail space there. There's so much more we can do. But what we did, we had to have a baseline of understanding of visual impairment before we went further. I'll hand over to you.

JOHN: Thank you. So, when we talk about travel and transport, let me get the clicker and we talk about way finding or how people get about, all of you got here today and you all overcame various obstacles. You know, you had your macrolevel thing that you wanted to make sure that you were here by a certain time and you worked the rest out when you were here. For blind and partially sighted people it's slightly different. As you know, from the point of view of a bit more pre‑planning and working out those things on the go, actually can make or break a journey. So, within win we've been researching how people, I'm calling it way finding in general, but how people get about and orient themselves. We came up with four principles or mythology, if you like, of wayfinding. Getting information and use it. Orientation. Navigation. And then entrance and exit identification. Or handover. Out of the four, getting information and using it is the most important of those principles. If you think about it, that's what we, as the sighted community, do on a general basis. We scan our environment and we filter out what's important for us. We orientate towards it. We navigate towards it and then we decide what we want to do with it. That's where the entrance and exit comes in. You enter that task and then you go onto the next one. You repeat that process over and over again. All of that obviously totally depends on the environment itself. We are talking about solutions but if the actual environment isn't accessible, and that could be physically accessible in terms of ramps, everything else, but it could be accessible in terms of getting that information, then we're starting from a really, really bad place. Any solution that we come up with as a sticking plaster has got to be a great big bandage. So obviously the actual environment itself and the infrastructure is absolutely key to the usability of any solution that we may place on top of that to improve the situation. Now when we were researching all of this stuff, I use the word stuff, I've got it in ‑ well done! We looked at, I think it was 66 different technologies, anything from Bluetooth low energy, WiFi fingerprinting, ultrasonic, really weird and whacky things, inertial sensors strapped to people's feet. We had a degree of success and failure based on how much we were prepared to invest in that technology. But let's be real about this, we are only going to invest in something if it provides benefit and then that benefit has a cost benefit implication. We do it all the time in our heads. Yet, we're walking around with what could be our best friend in terms of a smart device, why can't we utilise that? Why do we have to buy another piece of kit? Oh, it works now! Why do we have to buy another piece of kit when we've got something already that we potentially could use. We know that when we start looking at solutions or how a machine might be able to help us, we know looking back in history, that there are quite a few things that machines are quite good at reading. So, barcodes, optical codes, they're used in retail. Machines have been reading them for 20‑odd years. Barcodes were invented in 1952. It's really old. QR code more recently, 1994. The problem with them is you have to know where they are. You have to be close to them. You have to autofocus. You can only detect one tag at a time. But the principle we know works in history. We researched, well, carried out research to say what is happening in that space and we fell upon an organisation in Spain that was developing the next generation of QR code. I was checking the slide. That QR code allows the actual code to be read at a much further distance than existing QR codes. For example, 12 times farther. An A3 sized code, which some of you may have clocked on the floor, we can read at about 30 metres with a standard smart device. Now, if we can read at a distance, we can then start to mimic what the sighted community do in terms of reading signage because our smart devices can start scanning that environment and can actually start picking up on those codes and then delivering the information. So, when we talk about how do we know where they are ‑ if I held up my smart device in front of me it would detect a code with an angle of 160 degrees. Effectively as I walk into a room, and my head is facing in front of me, I will scan the environment, we can do the same with our phone and pick up all of the information that might be relevant to us using a device. So, they're the principles behind what we were looking at. Then we thought oh, we need to go and see if this works. We travelled to Spain to have a look. It was already implemented there. Yeah, they implemented it on the bus system. They implemented it on the Metro system. It actually delivered what we were looking for. We were going to try something that I don't think has happened in the sessions yesterday or today, which is a live demo. I'm really quite worried about!

(Laughter)

Marc, do you want to help.

MARC: You're putting this on me now!

(Laughter)

JOHN: You plug your phone in. I have a code here, an A3 sheet of paper. We printed this out on a laser jet and we put it in a laminate, we get a bit more sustainable for this trial. If I walk at the back of the room, you tell me when you're ready ...

MARC: This is where I get a dodgy text from my mum.

(Laughter)

OK so I've launched the NaviLens app. This is the interface that we can go into later on a bit more. I've launched the app.

JOHN: I'm going to hold up the code at the back of the room.

MARC: I have no idea where you are, I can't see you.

JOHN: You don't need to know, do you.

>> Two metres away, turn right for refresh.

MARC: Sorry, it's got the one on the floor.

JOHN: So, it detects multiple codes at the same time.

>> Detected tag. 11 metres away. Royal National Institute of Blind People, RNIB, head office, welcome to our head office. This is a NaviLens enabled zone. The main entrance can be found via the stairs in front of you or the ramp entrance to the right.

JOHN: It detected, can we do it again? Yeah. You detect the code.

MARC: It gives an indication of how far away the tag actually is.

>> Detected tag. Royal National Institute of Blind People. RNIB. Head office. Welcome to our head office. This is a NaviLens enabled zone. The main entrance can be found via the stairs in front of you or the ramp entrance to the right.

MARC: This tag can be detected from around 30 metres away. The larger the tag, the more detectable. The smaller, the less detectable it is. That means that we can control the level of information that we give to somebody within the environment, because the same information like the toilets that you may not want to know that the toilet door is 30 metres away, but you may want to know that the toilets is in a particular area, which is where the larger code will come into play, the smaller codes would come into play when you're near a door, as an example.

JOHN: Yeah, so during the research, we found there were four types of information that somebody needed to interact with during, whilst navigating any complex environment. So static information is one. We've just demonstrated a static wayfinding sign that you might be able to detect. Static information. But what about dynamic information? Information that's changing? Again, if you point the tag towards me.

>> 2.50 metres away. Realtime bus information for the next buses at the St Pancras international station bus stop. Line 214, Finsbury square, one minute and nine minutes. St Bartholomeus hospital.

JOHN: That again detected the real-time bus information at St Pancras bus stop which you heard. That was the time the buses are going. If you need to catch a bus you know when they're going. The point is that was a very, very highly expensive display. It was a piece of paper. If that was stuck on the bus stop, I as a user, don't need to remember the URL, or how to do it. All I need to do is point my phone in the general direction and I get that sort of information. Now, we also.

>> One metre ...

MARC: It's the one on the screen.

JOHN: Hang on, let's just get through this first. When we went to Spain, and on the screen, I'm not sure whether you're going to detect the tag over there. Because that's quite small. That's OK. That is an implementation of the bus stop in Spain. For those that can't see, it's a very weird shaped monolith with a tag on the top. When Marc and I were there, we had no idea of the times of the buses. As professionals how many of you use a bus as opposed to a taxi. It's not because you like taxis, generally it's because you don't know where to catch the bus and you don't know when to get off. Point your phone, off it goes. Equally one of the other research parts was we needed to detect moving tags. With QR codes they're static. If we place, on the slide for those that can't see, there's a sign at the front of the side of the bus and the tag is on the door. Because you get orientation information, not only can I now know of the two buses that turn up at the same time, because you're waiting for a bus always two turn up ‑ which bus I need, but I can also locate the door to get on the correct bus. The last form of information that we need to be able to detect is multiple directional information. We all know that with the older implementation of Bluetooth beacons there was a trigger point. You were told that reception was on the left, the toilets on the right. From the other direction you were told the same. We need relevant information based on your direction. So, Marc ... let me get this tag. In the middle. I'll move the chair. I didn't see that!

MARC: You would have owed me a new one.

>> Resuming scan.

MARC: On the floor is one of the codes just for everybody who can't see where the code is.

>> 1.50 metres away, turn right for refreshments. Turn left for the toilets. Continue straight ahead to exit and field stadium. As you probably guessed ...

JOHN: I'll rotate the code. Marc has walked up to the code from the other direction.

>> 1.5 metres away. This way to the toilets. Continue in this direction for block 466‑478. Turn right to exit Anfield stadium.

>> 1.50 metres away. Welcome to block 465. Continue straight ahead to enter the stadium. Turn left for refreshments and turn right for the male and female toilet.

JOHN: You get the idea from the point of view from a single code, and again, think of the shared spaces and think of multiple decision points, you get the information based on your direction of travel and the way that you need. Now, obviously this was designed for blind and partially sighted people, but we talk about sustainability and how do we make a solution like this become sustainable? Well that's to include the general public as well. If it works for the general public and it works for blind and partially sighted people there's no longer that cost overhead to support those that this was designed for. So, there is we need the iPad, don't we? So, a user has so many different user requirements, we've demonstrated audio and visual, if Marc had touched a button it would have displayed the textual information. Imagine somebody wants British Sign Language. Within the app they select British Sign Language. If the stake holder has introduced sign language video within each of the codes, then as they are walking around particular codes, they will have British Sign Language. Imagine somebody requires easy read or the form of pictograms. Again, they have the device, the way they want to use it and now the information is delivered in the form they want. Equally, information relevant for children. Imagine the scenario of a museum and there's an urn and it's a paragraph about the urn and what it's doing. Actually, the child can say I want the children's version and now that information is delivered in the form that they can understand. All through a sticky label that doesn't need any power from a client's perspective, as in an end user's perspective, the app is free. And from a stake holder perspective, they can implement that into their own operating if they want, but they have the autonomy and they're empowered to change all these codes, they reside either in the Cloud or on the client app. So, they have the ability to manage all of this information. No longer will there will be a sticker on the lift saying "out of order". They can simply change the code and all of these codes are daisy chained together from the point of view that I require step‑free access, every single code will deliver the information to get me to the step‑free access, even though it was originally a toilet sign or welcome to RNIB. Now it's got multiple uses. We believe this is one of the most easily implemented and flexible solutions going forward because it doesn't rely on you guys doing anything. All of the onus is on the stake holder and it's easy to implement.

EKATERINA: Thank you. Some really exciting things which our friends from RNIB are taking us through. I'd like to take a few minutes to tell you a bit more about our approach to accessibility at Uber. As you probably know, Uber has been changing the way in which transportation works, specifically on‑demand travelling. A lot of you may not think about accessibility when they hear Uber and hopefully, I'm here to change this today and tell you a bit more about how we think about accessibility and how important this is for us. John mentioned earlier that environments are key components and essentially the starting point when we talk about accessibility and how we all are finding our way around this complex world out there. Yeah, I just wanted to use this as a starting point to say yeah, we recognise that environments are getting more and more complex. We are trying to constantly come up with solutions which help us to better navigate environments in a better way and get from point A to point B easily, affordably, but also to make sure that everyone can benefit from this and from getting a ride at the tap of a button. I wanted to start with just a bit of an overview on our approach to accessibility in the UK. Some people may think it is just about the technology, so the actual app or website and what we do to make sure this is accessible. For me it's a lot more than that. Obviously, this is definitely a key component. But together with this, we also look at what can we do on the product side. So, we have two products specifically designed for people with disabilities or anyone who may need additional assistance. I will tell you more about these in a bit. Also, last but not least, people and processes, I'm sure you are all aware of the social model of disability. We are an organisation which works with a lot of drivers and riders, thousands of people, with different backgrounds. We've come to recognise that this is something which we need to really focus on how we educate everyone who's on the platform, to make sure that inclusion is part of everyone's mind set, whether you're behind the wheel or trying to take a ride to go somewhere, you know what's expected and how you can support those around you. In the middle, so on the slide we have a graph with three components. In the middle I've put "expert partners". It's very important to recognise that we're no experts when it comes to accessibility. We know that. We know it's important and we want to be as accessible as possible. That's why we are partnering with a lot of different organisations. We work closely with transport for inclusion London, around disability training, and with some local charities as well. I'm sure we will work with RNIB very soon with all the exciting things that we've heard about. Our approach is to use the expertise of all these different organisations to tell us what are the problems and how we can address it so we can use solutions. I want to give you a few examples and share some of the things which we've already done. Obviously, we recognise that there are people with a lot of different disabilities. I mean, on the slide we have a few examples, but that's not an exhaustive list. I will start with sharing some examples of specific features we have in place which we believe are helpful with people with different disabilities. To begin with, for those who are blind or visually impaired even things which come by default with the Uber solutions, such as cashless payment or up front pricing, can be quite helpful because you don't have to worry about how much it's going to cost at the end or needing cash or getting into argument with the drivers. We have very strong anti‑discrimination rules. Just last week there was a specific place in the app introduced for the UK that discrimination can be easily reported, straight to Uber. It's for both riders and drivers. It could be all kinds of discrimination ‑ age, disability, sexual orientation. Whatever it is, if you feel discriminated you can report it. And we will pick this up and take the relevant action. There's also some very strong policies around service animal. We still see unfortunately service animal denial in certain cases. What probably a lot of people don't recognise is that actually once this is reported to us, and it could easily be reported by the app, so there's a dedicated part that you can easily follow ‑ we have a process in place to investigate this and the beauty of it is that we have a lot of access to data. Nobody needs to worry about taking the license number of the driver or the vehicle, when they submit the complaint. We have all these data about the trips. We can see on GPS data, it helps us to understand was there discrimination? Every time we find this has happened, the drivers are deactivated and moved from the app. We also report to TfL or the relevant authority and work closely with them if they need support. These are some of the examples which we think are helpful for people who are visually impaired. Deaf and hard of hearing both riders and drivers ‑ for riders, I think the challenges there are probably fewer compared to if you are visually impaired. But we've done quite a bit of work here with regards to drivers to make sure that if you're deaf or hard of hearing, you can join the Uber platform and have the opportunity to work, to drive, to earn a healthy income. We've worked a lot with a company called lingoink. They can use the app to make sure that everything is easily understandable. And also, there are in‑built messages into the app. Sometimes maybe you order a ride and see a message saying "Your driver is deaf or hard of hearing. Please make efforts to communicate via the chat function in the app or just bear this in mind when you go for your journey. Obviously, this means a lot is an opportunity for those individuals who join the platform. Another example for people who have cognitive or intellectual disabilities is to share your ride. You can share with family or loved ones. This gives extra comfort and a feeling of safety. Someone close to you always knows where you are. In addition to this there are safety tools in the app. You can call 999, straight from the app. Or the emergency services or indicated something is wrong and get help if required. On the product side, these were some of the technical solutions we have. On the product side, I mention our two products Uber Access and Uber Assist. To some of you who may have not heard about them, but in the UK we're in a number of cities. Uber Access is our wheelchair accessible service. They are fully available for powered wheelchairs, everyone can use the service. Access is for anyone who needs further assistant when travelling, for example, getting into the vehicle or out when ending the trip. It could be people with disabilities, or elderly people, pregnant women or if you're leaving hospital and you need some help. The great thing about these two products is that all drivers go through a three‑hour face‑to‑face disability training. This is delivered by people with lived experience of disabilities. Those drivers really understand what are the challenge that people are facing and how to best assist them. Both of these services are priced exactly the same as Uber X, so nobody will be charged more because they have ordered a wheelchair accessible vehicle. Last but not least, as I mentioned already, on the people side, this is actually, I think, where the biggest benefits can come from, even though we are a technology company. Education especially when it comes to drivers, that's really important. Even when we have accessible products, all the features in the app, it's still not enough to make sure that you're going to have a great and seamless experience when you order an Uber. That's why we've reviewed the whole journey of a driver joining the platform from on boarding, so there is guidance and training there as part of on boarding on accessibility. It's a bit more high level. But it's made clear what the expectation is from drivers to provide service and support people with disabilities. Also, what the legal requirements because it's simply illegal to refuse service to someone who is disabled. Then there's a specialist training which I mentioned for the access and assist drivers. There's also a lot of ongoing communication, which we, or continuous education which we're implementing with podcasts for people with disabilities who share with drivers why it is important to make sure that they don't put barriers throughout their journeys and what's the best way to assist them. All of these efforts are not going to stop because we are constantly on boarding new people and we've seen the education has to be a continuous process. You have to do refreshes, reminders to make sure that this is on people's radar. There are a lot of resources online which we have developed like community guidelines, boning for riders and drivers. As I said, it's a platform that brings riders and drivers together. Everyone should behave in the best way possible and be respectful. This continuous education won't stop. We will continue investing in this to try and improve the culture of everyone who is using the platform. I just wanted to end with a quote from Dara, our CEO. Over the last two days, we've spoken a lot about leadership buy‑in. I joined Uber relatively recently, about nine months ago. I was quite happy to see that Dara has Med this statement which is that:

He's acknowledged that obviously we are already on the path of trying to embed accessibility in everything we do. But there is also a long way to go. We recognise this and will continue engaging with expert partners to help us on this journey. This was everything from me. We are really excited to talk to you, if you have questions at the end or there's anything new you found out about and you want to ask a bit more. Thank you.

>> Thank you. So, we've been to the airport. We've done that important journey through the airport that can often be perplexing and complex. We've also done our train journey, where we use NaviLens again. We took the bus to another location. This is like the story of my life. Lots of different transport solutions. Then we've done an Uber. The Uber has taken us back to our home. That home is the smart home of today. We want to think for a moment about the things that are happening in that domain that are particularly helpful. What why is a smart home particularly helpful from an accessibility perspective and what recent innovations might assist at enabling greater inclusion. We talk a lot to our community of blind and partially sighted people about smart homes and smart speakers. We think there's an interesting story particularly about the smart speaker, whether it's Google Home or Amazon echo. First an affordable range of options akin to the cost of a takeaway for two people. That's quite an incredible stat. We're not talking about stuff that's expensive. It's really cheap from about £30 upwards. Sometimes less if you find an offer. Very little learning required to get started. Crucially, one of the things that we've noticed recently, which is helpful from a planning perspective, is that older people with disabilities don't consider smart speakers to be technology. That's quite a big thing, isn't it? Computers, smart phones, tablets, that's all technology. But they will say I'm not really into technology and you ask them, do you have an Alexa or Google Home. Oh, I've got one of those. There's a sense in which it's almost leapfrogged over the key board, the desktop, the laptop, the tablet, the mobile, the smart phone. No ports, no key board, no mouse, no being regarded as tech by many. It's talking to the air. Helpful from an accessibility perspective. Why? Instant, up to date information on anything you might search for. Population data, people, places, events, geographical information. An excellent travel planner. OK Google how do I get to Machrihanish. Anyone know where that is? Points for that. If you ask Google or Alexa, they'll tell you how you can get there. Also, educational. So OK Google, what does a rock hopper penguin look like. Perhaps you know. Maybe you have kids, we have. My wife and I are both visually impaired, we often find that this is incredibly helpful. Imagine if you had to look up an encyclopaedia or a book of some kind to find out facts and four‑year‑olds don't want to wait long for an answer. They want it quick. That's one of the first things that they knew, my four‑year‑old knew how to use echo and Google Home before being, probably by the age of two‑and‑a‑half, it was incredible. Already now knows which one to ask for which particular type of information. They're quite discerning. Home control, Aleppo, OK Google change the lounge to magenta, show me who's at the door. Turn up the heating. Those might sound like convenience items. But for people with a visual impairment and other disabilities, the value is actually added. It's a value odd on top of what it delivers for regular consumers. Some of the things that are particularly interesting at the moment. Nest Home with facial recognition and customised music, video, events and shopping etc. Those know who is talking to them and give you customised feedback, rather than feedback from who spoke last. The ability to move music from one device to another, as you move throughout your smart home. The ability to delete assistant data, for example, just by asking. That's a recent addition. Allowing you to do that. Greater responsiveness due to on device processing. Another one I wanted to throw in, I love this, is whisper mode on Alexa. Anyone tried that? If you whisper to your Alexa it will say, "I think you have just whispered. Would you like me to whisper to you?" If you say yes, if you whisper, I'll whisper back. If you want to find out the time in the morning, you can whisper, "Alexa, what's the time?" You can ask and get the time whispered back to you. You don't wake up the other person. So, we're almost out of time. I'd like to give a big hand of thanks to Marc Powell, John Worsfold and to Ekaterina Petkova for being fantastic panellists. I found that super interesting. So, can we just give them a big round of applause. Thank you.

(Applause)

We're a little bit behind on time. If anyone has any questions, if you'd like to just, can you either raise your hand and the low vision guy will try to find your hand.

FLOOR: I'm from BT. I have a question around the whole accessibility of the actual programming to be able to create your own version of the QR codes. So, as an organisation, I'm very interested, I think it's got many different uses. I think it's fantastic by the way. Can I, how could you go away to, you know, do I, can I have tools to basically just create my own? Or does it have to go through Spanish companies? Or are we not there yet?

JOHN: You can come to us and we can license, arrange a license for those codes and we could help you implement the codes, the mythology. At the end of the day, the technology is just the trigger. It's just the enabler. The key bit is the message. That message is derived by you as an organisation. Allowing you and empowering you to create relevant messaging is the key to the use of that technology. But yeah, I mean, it is relevant and it's available now from the point of view of we're looking for trials.

FLOOR: Thank you.

ROBIN: Any other questions? I've got one here.

FLOOR: It's a bit follow up to that. You were talking about having the codes stuck on the bus. I wanted to clarify that. Because a London bus, they have electronic screens that changes what the bus is. Was that telling you what the door was like, this is the door and it opens to the left or is it telling you this is bus 214 or I guess, yeah, I'm wondering how that implementation of that would work?

MARC: Absolutely, it's a really good question. Effectively the code can be what the stake holder wants it to be. It could be that dynamic information saying yes, this is bus number 442 and it's going to London Bridge. Or it could be yes, this is the door to the bus, please enter and take care. Or it could be a priority seat. Or it could be anything you want that to be. In, I think, from our point of view, that would be the bus number. It would be to identify the bus itself. That's what we would certainly recommend. And just very quickly, we've done a whistle stop tour of this technology here. I don't think we could have begun on for another hour to talk about it, but yeah, certainly if there's any questions around it do fire them at us when we finish.

ROBIN: Thanks. We're super keen to partner with any organisations who think this technology would be useful. I think we have time for maybe one more question, does anyone have a question, I'm patrolling through. This is a low vision guy just avoiding the guide dog. Lovely dog. Hi there. Any questions at the back at all? Anyone else who would like ...

FLOOR: That's a really fantastic piece of product I've seen actually in a few weeks now. One question I have is there was a lot of talk about how do we make maps more accessible? Is there any way of integrating this with the location‑based services using maps?

JOHN: So that totally depends on what you mean by location‑based services and maps. But effective, if you can pepper the environment and, I mean for example, if this was integrated into a standard blue dot location‑based service, you could pepper the environment with the codes to fill the gaps, but you still have got the issue, if you have a digital map and you're expecting somebody to assimilate that information, they generally need some context. They need to know, they need to be able to have some level of vision and awareness of what the importance of that information is. The concept of this is to give the individual the same freedom that sighted individuals have. Sighted individuals and I'm sure, if I gave you some instructions of how to get to the breakout session for a coffee, you would take the first one from the point of view, you get up and go to the door. After that, A, you'd have forgotten them, and B you'd work it out on the way. Why is it solutions for visually impaired in terms of navigation tend to give blind and partially sighted people a list of instructions to go from A to B and what tends to happen then, you isolate that individual from all the other things they could do. Yes, you might get to the gate on time, but you've missed the fact that you could have had a coffee on the way, or could have gone to duty free, or whatever it happened to be. The point here is to create that level of engagement and choice that we all take for granted.

ROBIN: A great way of summing it up. Thank you. Engagement and choice and giving people more possibilities, more flexibility and more independence. Once again, thanks very much to our panellists and thank you very much everyone for coming.