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WSIS ACCESSIBILITY DAY
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UNIVERSAL DESIGN FOR SUSTAINABLE DEVELOPMENT
OSLO METROPOLITAN UNIVERSITY
GENEVA, SWITZERLAND
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>> ANTHONY GIANNOUMIS: Okay, we will go ahead and get started. We had some technical fun and games but I think we are online now and ready to rock. I see Andrea has made herself scarce. So we will go ahead and begin.

We have six presentations tonight. It should be pretty exciting, all about universal design as a mechanism for sustainable development. I am going to do my best to speak as clearly and slowly as possible for our captioners. If I end up running off the rails as an American I often do, just give me a heads-up and I can slow down.

So we have six panelists here. Myself, I'm from Oslo Metropolitan University. My name is Anthony Giannoumis. To my right, Shaddi Abu Serah, web accessibility and sustainable development.

And then we have Ayanna Samuels on the end, aerospace engineer, international development professional who specializes

in ICT for development, technology policy, and gender. And she is going to be presenting intersectional perspectives on disability, gender, and ICT accessibility.

And then we have three very distinguished women who have just won the WSIS Hackathon for Education, Best Pitch Award. I think we can go ahead and start by giving them a round of applause.

(Applause.)

>> ANTHONY GIANNOUMIS: These three are the next generation of innovators in universal design and sustainable development. We are proud of their accomplishment.

The first speaker is in the first year studying computer science and will be presenting artificial intelligence and women with disabilities. This is a research project that she and I have been working on for the past year. Then Alinya and Rosie are going to be presenting their solution for the WSIS 2019 Hackathon which focusing on innovations and education and digital inclusion.

And finally we have a practical, practice-based experiential case study of universal design that will be presented by Taha Ben Khalid, a startup in Oslo, Norway. We have a nice small group. We will keep it flexible, a little bit relaxed and get everybody to dinner on time. How about that? Great!

All right. We will start with actually the presentation on -- yes, sir. We'll start with the short presentation about kind of state-of-the-art when it comes to universal design in the Information Society.

Now, universal design is really a powerful but kind of crazy idea that we can change the world by designing a society in which everyone can participate equally. It is an idea that only recently has come into practice, research, and policy. It is an idea that in the 1950s, the 1960s, or even the 1970s would have been considered far fetched or idealistic or just radical.

Ultimately I believe that universal design provides a framework and a point of departure for considering how we can create technology that everyone can use equally. In 2006 the United Nations put out the Convention on the Rights of Persons with Disabilities. It was innovative because it was the first time the U.N. had actively proposed universal design as a state obligation.

Specifically, the CRPD obligates states to undertake or promote research and development of universally designed goods, services, equipment, and facilities.

So when we talk about universal design, we've got to juxtapose the fundamental right to participate in various aspects of social life with obligations to promote universal design.

Now, the United Nations also provides a very useful definition of universal design. It says that the universal design is the design of products, environments, or services essentially technology, to be usable by all people to the greatest extent possible without the need for adaptation or specialized design. Essentially there's three components: Technology should be usable, usability should extend to everyone in every possible way, and it can't require any kind of extra fixes or add-ons. If you just download this 400-dollar piece of software it magically starts working. It is a simple but uncompromising view.

There are three interesting words wrapped up in that definition. Let's unpack them briefly. The first word is "design" the design of technology to be usable by all people.

The U.N. didn't specify whether design is a noun or a verb. But if we turn to evidence from computer science, from human computer interaction, from disability studies, science and technology studies we find that design basically means both a process and an outcome. You can't have universal design without making sure that your process is promoting universal design and, of course, you can have many different processes and not have universal design.

So in terms of technology we have to consider the programs by which we design technology systems and services as well as the ultimate form and function of those design outputs.

Now, the second is the word "usable" and use built has been examined in different designs and things like physiology, human factors and psychology. There is not a single definition of usability. But the simplest comes from the international, effective, efficient and satisfying. Can I reach my goal? Can I reach my goal quickly? And am I happy or at least not frustrated and angry once I reach my goal. Has everyone ever had an experience using technology that made them furious? Yeah, we've all been there. I am a famous example of my mother who got so mad at her printer, she picked it up and threw it across the room. Technology should not cause us to do this. Technology shouldn't be the reason why we grow frustrated and angry.

So universal design really looks at how to create technology systems and services that are effective, efficient and satisfying.

The third term and probably the most complex and difficult part of the definition to operationalise is everyone. What does everyone mean? When I talk to my students they always say it means everybody, right? It's so simple. How do we define everyone? How do we operationalise the diversity of the human experience?

So in order to animate and further frame how we can translate universal design in practice, myself and some colleagues at Harvard Law School set out four principles of universal design for the Information Society. These principles include social equality, human diversity, accessibility and usability, and participatory processes.

Now, social equality is a very broad concept that deals with a person's chances of succeeding in life. It is not equal opportunity as often misunderstood. Making sure that everyone has a reasonable chance at achieving success in various aspects of their social life.

When we talk about universal design, we need to consider equality not just from the need to eliminate discrimination but from the point of view that we need to ensure that everybody has a reasonable chance of achieving success. For example, we have sign language interpreters here to ensure that people who are deaf or hard of hearing have an equal chance of successfully enjoying this session as people who aren't deaf or hard of hearing.

So social equality animates and frames how we adopt universal design in practice. It really leads us to the second principle of universal design, human diversity. Historically, designers have been very interested in what they call the quote-unquote normal, average, or typical user. However, I would argue -- there's evidence that shows that there's no such thing as any kind of normal, average or typical user. Raise your hand if you're average. Anybody in the room average?

Nobody wants to own up to being average? It's shocking! I've done this presentation across the world and I've yet to meet an average person.

The U.S. military has even shown that the average person doesn't exist. In the 1960s, the Air Force took measures of all physiological embodiments of a person. Length, width, height, circumferences, range of motions. They average those dimensions and created a new airplane seat that was going to fit that average person. And in the end what they found out was it didn't work for anyone. It didn't make anyone satisfied.

When we talk about human diversity, we are not talking about creating a one size fits all solution. We are talking about creating a one size fits one solution. A solution that ensures that groups of people historically discriminated against have the opportunity for full and effective participation in society.

This means applying universal design principles. We should consider all barriers that someone might experience accessing and using technology, whether that is gender, race, color, sex, sexual orientation, language, religion, political or other

opinion, national evident insurance company, indigenous or other social origin, property, birth, age or any other status.

The third principle of universal design is made up of two components, accessibility and usability.

Accessibility refers to whether or not persons with disabilities can use technology and usability as we said refers to effective, efficient and satisfying use.

So when we talk about accessibility and usability from a universal design perspective, we are really focusing on the barriers that emerge when an individual engages in a specific activity in a specific environment. For example, me, using my computer in this room is a very different experience than me using this computer in the hotel room propped up on some pillows.

Accessing technology and using technology are interdependent and cannot be considered in isolation. Giving me a computer does me no good if I'm trying to access a website that is inaccessible.

So in this way universal design really provides a means for ensuring that everyone has the opportunity to access and use technology on an equal basis with others. Now, we will get to the last principle and I'll turn it over to the next speaker. Participatory processes. This focuses on the active participation of users in the design and development of technology. When I say active participation, what typically happens is a designer will bring someone with a disability or older person or a younger person into a lab. They will give them a piece of technology and a cookie and say tell me what you think and ignore everything they say.

When we talk about active involvement, what we mean is from the very beginning at the idea stage involving people with social disadvantages in the process of taking that technology into practice. So universal design is about designing technologies that everyone can use on an equal basis with others. It means recognizing the Union eke social disadvantages that people face accessing and using technology. It means creating technologies that are accessible and usable for persons with disabilities and everyone. It means ensuring the substantive participation of all relevant stakeholders or their representative organisations. Now, universal design is not a panacea. It is not going to solve all of the world's problems, although I did just return from Mozambique where one of my students I was teaching universal design with said: I think we can use universal design as a means for restorative justice and for ending war and conflict. It kind of blew my mind. I never thought of that before. I think she is a brilliant student who is going to be doing amazing things in her future.

So before we go to the next panelist I want to encourage everyone to add me on social media so we can continue this conversation now and in the future. With this I turn it over to Shaddi Abu Serah who will talk about his work in universal design in sustainable development.

(Applause.)

>> SHADDI ABU SERAH: Good evening. Long day, hmm? Welcome, everybody. Thank you for making it. I will try to be brief and quick because I'm also really, really interested in the upcoming presentations. So in this context of universal design and kind of like the big picture which I think applies to any products and services we need to make accessibility part of everyday stuff. I think what we are talking about here applies to high-tech, talking about the latest AI and AI bias and all these kinds of things that are incredibly important.

At the same time also to low tech. If you don't build a ramp involving the users who are going to be using it, the ramp will be too steep, too slippery, the door is going to open on the wrong side. There will be all sorts of issues. High-tech and low tech, I believe that the participation of people with disabilities in the usage and design process in order to assure universal design at the end is really important.

The web in that context I think is a very important media. So every day we use the web. Meanwhile, we are not even aware when we use the web and when we don't. We just open the app or order whatever. We book something. We don't even think of it as before when we had to go to our browser on the desktop, open that and then go into the Internet, maybe even dial-up or something. Some still do.

But the Internet and the web as the interface to the Internet is becoming more and more a commodity that we just use every day.

So when I talk with people about making that accessible, to many, many people it is a very abstract concept. What does it mean? What do you mean by making it accessible? The definition we have for web accessibility, leans very strongly on the UNCD that Anthony has just applied. It means web accessibility means that websites, tools and technologies are designed so that people with disabilities can use them. Again, it sound very simple. You know, people with disabilities can use them.

But again, this needs to be broken down further. We have standards at WTC, the worldwide web Consortium. The core part of our work is developing standards for the web. Part of W3C focuses on making the web accessible.

We have four guiding principles that we talk about. This applies to any digital product. Think to yourself: Is the content that I'm providing, the information that I'm sending, is

it perceivable to people with different senses? If I cannot see it, can I maybe feel it through tactile? Or hear it through text-to-speech?

Is it operable in different modalities? So if I can't use a keyboard because my dexterity is too low, can I use speech input? Can I use a joy stick, a mouse? These kinds of things, how to operate the computer or digital technology in a different way.

Is it understandable to your audience? Can people understand what you are trying to say? Or is it a lot of jibberish and computer jargon?

I think everybody can relate to that.

And finally, is it robust? Can you use your own assistive technologies to access that? Or is there certain things preventing you from being able to use? Yes, it works, but if you use this version of that browser with that version of a computer, so on, then when all the stars align you might be able to use it. That is not considered robust.

These are the four guiding principles: Perceivable, operable, understandable and robust. Like pouring water to grow a plant. If you walk out today, these are maybe the four things I would like you to remember: Perceivable, operable, understandable and robust. If you do any of your technologies, any of your services following these four principles, you've gone most of the way.

Breaking it down even more, so the accessibility guidelines that we developed at W3C provide specific requirements. For example, to provide captions for media content. I think we are all aware of how important that is for people with hearing disabilities. But it provides benefits to many more. I think in this room we witnessed that with the live captioning and how excellent that is to help us all understand what is going on, what is being said.

Text size, being able to change the text size, being able to make text bigger. Many people don't even know that that exists. Again for people with low vision this is essential. For many other people when you are using your mobile phone and the text is so small, in that case you have quote-unquote low vision.

Operating the computer by voice. For many years this was kind of a very esoteric, only computer geeks with people with disabilities used this mode of operation. Today it is basically in every mobile phone that you have voice commands that you can use that. It is becoming even more mainstream. This is important that you programme your websites in such a way that it supports that.

Again, the benefits here are for everyone.

I think Anthony mentioned the complexity, how many websites have you seen or content that you've tried to access that wasn't laid out properly that was chunks of text and big jargon hard to understand. With people with cognitive and learning disabilities this is an exclusion factor. You think it's so easy to, I don't know, fill a tax form or file an employment application or all these things that we might take every day for granted or we struggle with a little bit. But for other people it is an exclusion factor. The benefits for all of us when things are laid out and communicated properly, it helps everybody.

Forms, computer forms, how to fill in something. I will go a bit quicker.

Robust, as I mentioned earlier, to work with different kinds of assistive technology. For example, text-to-speech. It is very often simple programming that needs to happen. It is really in my view very often the lack of awareness, lack of knowledge. We teach developers year for year all these designers and developers that get educated on building content without having prior knowledge of making it accessible. And we are, we need to address that at the root.

Anyway, just to wrap up very quickly, I mentioned earlier standards in this area. The most well-known is the web content accessibility guidelines, WCAG 2.0. It defines these four principles and so-called guidelines and success criteria that I mentioned.

This is an internationally approved standard. It has been adopted by ISO as ISO4500. In Japan as the Japanese industry standard, in Spain and many other countries. It is referenced in the European national standard called EN301549. Yeah, standards and numbers.

In the U.S. Section 508 which is a procurement law, the technical standard for that relies on WCAG 2. It has been adopted around the world as the standard for web accessibility.

We have an update that came out last June, WCAG, things keep evolving for people with low vision, with cognitive disabilities and for people using mobile devices. Last but not least at WAI we develop a lot of educational materials, freely available at W3.org/AI. You can go there and find a lot of educational awareness materials. We welcome translations. These are royalty-free. Everyone is welcome to use that. We really think that it is not only a technology issue. It is an educational issue. It is an awareness issue. Developers very often don't know what they need to do. Managers don't know what they need to do. All this together needs to happen so that we have an end-to-end accessibility.

Thank you very much.

(Applause.)

>> ANTHONY GIANNOUMIS: Thank you, Shaddi so much. It is enlightening. I want to reinforce what he said about the work that the W3C has been doing for the past 20 years? Twenty years formally, but I know the work that has gone into the W3C goes back to much earlier than that.

So him and his colleagues have been in this industry longer than I have. Four simple words of: Perceivable, understandable, robust, can radically change how we understand technology.

My colleagues from the global south want to know: Oh, my gosh, this will cost too much money. I won't be able to afford to do all these things. I want to say there are a lot of very low cost solutions that can be provided for countries across the world.

And yes, there may be a resource constraint issue in maybe some of the global south industries but global north, going to a company and making them understand that they need to make things usable, we have to have solutions that are low threshold. There are some things that we can move towards and kind of mature into, but there's a lot that is very low hanging fruit that costs almost nothing. I'll give an example. I'm sure the rest of the panelists will have their own ideas, but having an accessibility policy on your website is huge. Having a place where people can go to say: Oh, this is how the website is accessible. This is maybe some things that aren't quite accessible yet. But we are working towards it.

Here is a contact person to reach out to to say hey, I experienced a barrier. Could you help me figure out how to use this, that, or the other thing?

Great. You also mentioned that technology was evolving. I'll also point out according to the U.N., we have to recognize that disability as an idea is also evolving concept. When you take these two evolving dynamics and put them together, we have to stay vigilant constantly to make sure that we are internalizing some of these efforts and not treating them as a band aid or trying to do a quick and easy fix. It is really about institutional change.

Thank you, Shaddi.

We'll turn it over to Ayanna, who will be talking about intersectionality between gender and disability.

>> AYANNA SAMUELS: Thank you, Anthony. Let me thank you for inviting me to be on the panel. The topic means a lot to me personally and professionally. So I'm honored to be able to share my experience, coming from Jamaica, on the subject of all intersectional perspectives on gender and ICT accessibility.

Good afternoon. May I have the clicker, please?

Thank you. Okay. I want to start off by discussing the term "intersectionality. I want to make sure that we are all on the same page in terms of what that means.

It is looking at both a Marco level institutions and social structures and micro levels identities and lived experiences. I'm taking this from a paper written by Anthony, right here to my left, and Mr. -- I hope I get this right, Rangiv Curve.

A lot of individuals when thinking about the intersection of major concept think about things that they can see. A sort of, let's say disability that is evidenced to the eye but there are so many things about the day-to-day experience that may be a psychological experience, that may be just a reality of being a black woman and what that is like, living while black. That also is an experience that lends to the world being experienced in a manner that needs to be part of the conversation around how we access ICTs and use ICTs when this is the perspective and the identity that you carry forward with.

So it is really important that we be on the same page in respect to what we mean when we speak to intersectionality. It also recognizes that there are overlapping realities and overlapping identities that individuals carry. And the idea that I think of is that in many ways when we think about the digital divide we have been 2D in our analysis. But as Anthony mentioned, no one is average. We live in a 3D world. As we seek to bridge the digital divide, we have been taking a 2D perspective which doesn't take into account everything that comes into the equation when seeking to make sure that we can use and access ICTs. This is why I feel so passionate about it. It is like water carrying water from point A to point B, but we have a basket. So we lose a lot of the water.

>> ANTHONY GIANNOUMIS: Could I ask you to slow your rate of speed a little bit for the captioners and the sign language interpreters?

>> AYANNA SAMUELS: Yes, my apologize. I do speak at a faster rate than normal. Thank you, Anthony.

I want to talk a little bit about some of the experiences at this intersection of multiple forms of social disadvantage, which is what I was speaking to earlier in terms of taking the discussion from 2D to 3D.

Am I doing a better job now? Okay, excellent.

So as was mentioned by Anthony, the U.N. in their Convention on the Rights of Persons with Disabilities are now taking into account the fact that there are overlapping forms of social disadvantage that must be considered when we try to, let's say, understand the experience of everyone and ensure that we take into account the experience of everyone in seeking to access and make use of ICTs.

And this is very encouraging, but we now to see this move into law and move into policy so across the board we will have mainstreaming of these conversations in seeking to bridge the digital divide.

As I mentioned earlier, previously the digital divide was defined as much more of an economic and technical conversation which didn't take into account so many of the other identities that I will bring up in an upcoming slide but Anthony would have already mentioned.

As a result, this was not taking into account as I would have mentioned earlier a lot of the other experiences that must be critical in analyzing how we bridge this gap. So despite easily around 30 years of experience in seeking to bridge the digital divide we really have yet to identify solid solutions for improving access for ...

(Audio breaking up.)

>> -- other basis for discrimination that ... Anthony mentioned but I think ...

(Audio lost.)

>> -- policies and we assume, for example, that we are existing in gender neutral place. If we are not and the policy assumes that, there are so many things that are skewed. And will not achieve the goal that they are supposed to achieve. It is really important that we keep these bases in mind as we look to prepare this talk we wouldn't have been able to speak to all of these different perspectives. So we lifted out gender. lifted out disability and also socioeconomic differences as things that we wanted to focus on in this intersectional approach.

The key is that we want to be able to improve access from this intersectional perspective. As I spoke to earlier, this is personal for me. I'm a rocket scientist, black woman from a poor country and many times when people see me they don't see rocket scientist, right? It is very interesting for me how the conversation changes when I move from being just what people see to understanding that reality. Sometimes when I'm at the immigration counter when I enter the United States, for example, I can see the immigration officers, their eyes bug out when they scan my visa and get my details. I have had people say to me: You went to MIT? That means you have a better job than me, but they use their outside voice to say that. What do we do to the self confidence the little girls who look like me when that is the day-to-day experience.

As a result, we must keep in mind that the digital divide impacts people with different identities in different ways. So we can't have one blanket solution when the digital divide impacts different groupings in different ways, which is why I'm

happy that this 3D perspective is seeking to look at specific barriers for people who present with different identities and then formulate ways to address these barriers.

So I'm happy that we are seeking to shine a light on these overlapping forms of social disadvantage.

Now we ask the question: What are these barriers that the individuals with the three identities I mentions, looking from the gender perspective, the disability perspective and socioeconomic status, what are some of the Parriers they have found in seeking to access and use ICTs. The research found three main things which were lightly touched on before: Cost and afford ability of ICTs. One brought up, there were interviews with individuals who presented with the identities I mentioned. One blind lady mentioned in taking the bus if she doesn't get there first making on to a comfortable way can be difficult. Often when she does the audio system that announces the stops doesn't always play. She won't know where her stop is supposed to be. The alternative of taking a taxi is very expensive and as she mentioned not necessarily safe for her as a single woman in a taxi.

There are so many things coming together there: Socioeconomic status, the accessibility technology not being used when it ought to be brought into the equation and the gender and what that means for her safety. These are the realities of individuals who have not been given a voice that need to be spoken to as we seek to bridge the digital divide.

There are also concerns around hate speech online which resulted in solution. As I saw this I reflected on recently. There is an Australian female football player who showed a lot of strength with a phenomenal kick. This is not the only perspective this person brings to the table is gender. Socioeconomic status is not one, not a member of the persons with disabilities, but in comments on this post that was supposed to be showing her athletic skill it became squarely sexual, squarely denigrating and there was a lot of public outcry about it. BBC carried the Article. I can't think of a Messi photo calling that kind of deny gracious. This bubbles to the surface because of the extremity with which it occurs. You can imagine that individuals with socioeconomic reality would be more so anxious about participating online. Whether the topic is there or not, that is the avenue that people often use to try to bring someone down.

In addition to that, to acquire digital skills like use of English and the cost of certain classes, et cetera, to both obtain English or exposure to the computer, et cetera, if you don't have that at home, that can be prohibitive for individuals. So this is where you can have the multidimensional

barriers coming together in terms of what you can afford, what your native language is, et cetera, et cetera, which are leaving an excluding people.

>> ANTHONY GIANNOUMIS: Just a reminder about the speech?

>> AYANNA SAMUELS: Oh, thank you.

>> ANTHONY GIANNOUMIS: Slow down a little bit? Please? Just for the sake of our captioners and sign language interpreters.

>> AYANNA SAMUELS: Thank you, thank you.

Apart from those factors we would have mentioned before, there are more subtle factors. I spoke earlier about the comment from the immigration officer. If you grow up and that is constantly the narrative you get around being, for example, female and what your role should be in society, that will affect what you aspire to. It is why I'm particularly proud of our winners of the Best Pitch today. They are rewriting a narrative and showing faces that I want to see be shown as the winners of a technical competition.

It comes as no surprise to us, research is still showing that male students of high income families are using technology more often and more content creation capacity and we see need to see more equity in that space.

In conclusion as I mentioned before with the previous definition of digital divide, the previous problem we are seeking to solve even here at multilateral fora, we were focuses more on technical and economic perspectives. We need to move the conversation to the more complex reality of intersectionality that we are only beginning to scratch the surface on now. It is the only way we will emphatically close the digital divide. For that we need to see law and policy integrate this intersectional reality into let's say, rules that different entities must abide by and we want to see more programmes take this into account so we can promote the ideas of ways that we exist in reality today. Thank you for your attention.

(Applause.)

>> ANTHONY GIANNOUMIS: Thank you, Ayanna, so much. Important points around how universal design can be operationalised. If we are looking at it in the way Ayanna described as two-dimensional or one-dimensionally, we are not defining the full human experience and she focused our attention on how these overlapping forms of barrier really impact people's lives, safety and their security.

So for the next presentation Hafsa Shahzad will present on artificial intelligence, women, and people with disabilities.

>> HAFSA SHAHZAD: Does it work? First of all, thank you so much for inviting me here and giving me this opportunity to

present about artificial intelligence, women, and disability. And thank you all for being here. No, it is not this one. It is the other one.

(Pause.)

>> HAFSA SHAHZAD: I will start off by asking all of you a question: What is the first thing that crosses your mind when I say artificial is in? What is the first thing that you think about? We all have different thoughts. Some people might think about machines, future, rocket scientist bots, so on. I remember before I started doing research, I always thought about rocket scientist bots and that they would take over the world, for some reason. But after doing research I found out that it is more than just robots. It is about opportunities and challenge.

Opportunities for people with disabilities and challenge for women. It is not working?

Okay, okay.

So the first thing we need to do is to define what artificial intelligence is. There are tons of definitions out there. Some people define it as a technique to give computers and programmes the most intelligent response. We can say that AI is intelligence demonstrated by machines. It is an area of computer science that emphasizes the creation of intelligent machines that work and react like humans.

And artificial intelligence is creating new opportunities for both men and women. According to Worldwide Web Foundation, AI is almost entirely dominated by men. To make AI better for everyone, it is important to create balance between men and women. More women need to participate in the design, implementation and the ethics and norms of the next generation of machine learning and AI-powered technologies. This is important in reducing AI gender bias. As we have more use for a, this area will grow.

In some cases, this area can take over more things people currently work with. Looking further into the future it is likely that both men and women will be affected.

But world economic Forum writes that twice as men women than men are likely to lose their job as machines replace human labor. They obtain this report from the institute of special economic analysis. The reason behind this is that women are more likely to be employed in jobs that face the highest automation risk. It is expected that 97 percent this year will lose their job and 73 percent of them will be women.

And this is a huge challenge. We really need to do something with that.

We create an image where we associate women with, for example, nursing. We think that men and technology goes

together. And some people, for some people it is difficult to see women work with technology. This is completely wrong. The American leader of the global economic excellent to artificial intelligence believes that in modern society people think that men is for programming and woman is for housewife. She believes that AI can lead to reinforcement in society's prejudices. And gender difference. But it can also help to shrink them.

At breakfast for women and also hosted by Norway she told about a study that used archived image from getting an image to learn. It ended with pictures of men in a kitchen were recognised as women. She believes that when artificial intelligence is trained for image recognition, men will be associated with other things like cars, fixing machines and things like that.

Women on the other hand are associated with kitchen and house work.

And artificial intelligence for sure is an exciting moment for technology. Where will it bring us? Will we ever manage to include everyone? It is important for women to be a part of the future. And it is also important to make people with disabilities be a part of this. And a researcher at the University of Leuven in Belgium said that it is important to investigate new kinds of accessibility tools to prevent that people are left out of society.

Because the society relies more and more on communication through a computer and mobile devices.

And what I want you guys to do now is to try to put yourself in a situation where you feel left out of society. A situation that everyone understands the new technology and the methods of communicating with each other. But you are left out of these activities. What if you were unable to use a laptop, tablet or smartphone? What if you heard that you can't use them because you might break or lose them? This some of many things that disabled people go through in their every day life. In other words, they are digitally excluded.

It is important to make new technological trends improve the lives of people with disabilities. Technological solutions should be designed for all, including for a person with disability. Today the technology has developed a lot. One can ask how AI can help people with disabilities to perceive their careers and live independently. To help people with, for example, deafness and other different softwares that can understand image sounds and languages being used.

A few days back I did some research. I found out that there is an iPad that translates sign into text and speech. And it is used at some airports around the world. I remember when I went to high school, we had people with disabilities there and some

people were deaf. I remember there weren't much communication between us. This shows that there is a huge -- they are excluded from society. And there are a numerous applications available that can help to make every day life easier for people with disabilities.

One example is Microsoft seeing AI that describes the people, text and objects allowed for people with low vision. It is exciting to see what the future will look like, where AI will bring us and if we will be able to include everyone in society. Thank you so much.

(Applause.)

>> ANTHONY GIANNOUMIS: Thank you. I want to say what an honor it is for us and the audience to hear your worlds. You are the next generation of universal design researchers and developers. We owe her another round of applause for coming here today and talking about these issues.

(Applause.)

>> ANTHONY GIANNOUMIS: As her teacher it is hard to choke back the tears when you hear your student excelling at these events. Thank you, Hafsha.

I will turn it over to another group of people. Alinya and Rosie O, two of the three Oslo Metropolitan University Hackathon winners this year. I turn it over to you.

Yes. Hafsha too.

>> Which one is it?

>> Our educational system has failed to achieve full inclusion, promote diversity and to ensure full and equal opportunities for employment.

We believe that life-long learning can help promote gender equality, assure equal access to employment and assure that everyone is included in the Information Society.

Zarina is a 39-year-old woman from Pakistan. She has basic education, no profession, no job, four children, and almost no digital skills.

However, what she has is an amazing talent for sewing, but Zarina faces many stereotypes and prejudices which force her to stay at home alone and take care of her family.

Our solution can help her become an independent woman who can learn about new clothing designs from around the world and use her talent in sewing to become a entrepreneur.

Zido may sew it, which is the natural language in Pakistan. With this solution she can discover new patterns, learn how to sew the clothing Steins and be a source of inspiration and be inspired by other women who share the same interests around the globe.

>> With Zido, she can collaborate and help build a community of women from distant cultures, from right next door. These

relationships help women support one another, solve common problems and work together to create new small businesses in homes around the world.

>> Based on our research we know that not all women in Pakistan have this. Many women have access to smartphones through their children.

>> And Zarina has a nine-year-old daughter. Like many families in Pakistan, she is teacher her daughter how to sew. We believe that intergenerational exchange of knowledge and skills can help to solve the problem of Zarina's digital exclusion. Zido provides an opportunity for Zarina to teach her daughter how to sew and for her daughter to teach her mother about how to use technology.

It is a mobile application with the simple interface that is easy to use for people with low levels of literacy and digital skills. Zido has three main features, learning materials divided into three levels: Beginners, intermediate and advanced. A social platform for communication where a user can ask questions and discuss different things.

And finally, a marketplace for trading and exchanging clothing designs, patterns, and selling finished products.

We believe that our solution can empower Zarina and her community. And the best of all, it is using existing technologies in UA to make development simple and implementation effective. We choose to focus on Pakistan because we have strong connections to this country. However, we acknowledge that Zido can create value for women in other country, even in other areas such as cooking. We believe that Zido can help government and nongovernmental organisations that aim to promote life-long learning, gender equality and social inclusion. Although Zido is a social innovation we understand that it has commercial potential. Social investors or industry partners can use Zido for advertising, selling fabrics to the communities, or generate revenue from purchases on the platform.

After today, we will continue to develop this application and plan to test our solution in the collaboration with communities in Pakistan.

>> For Zarina Zido provides the means for learning more about her passion, for becoming a entrepreneur, and for connecting with the next generation to learn digital skills.

Thank you so much.

(Applause.)

>> ANTHONY GIANNOUMIS: Than thank you. Can you hold up the prize that you won? Let's give them another round of applause!

(Applause.)

>> ANTHONY GIANNOUMIS: Excellent, excellent.

All right. A last but not least, we have Taha, who is going to present some of his work that he has been doing recently with the startup called ViewMe. Can you introduce your work, please?

>> TAHA BEN KHALID: Thank you, Anthony. Thank you everyone for coming. Today I am not going to show my presentation but talk about presentations. I am going to share my story today. I was sitting at my school in my class and there was such an important lecture, a presenter who came from some other country who was giving a lecture on a screen like this and presenting to a lot of students. I was unfortunately sitting on the last seat of that auditorium. And I felt that I couldn't see the screen. It was not about my vision, but it was that the text on the screen was so small and I was a bit far from the screen.

So I was struggling to basically -- I couldn't move forward and struggling how can I basically understand this slide? Then I lost my attention basically. It distracted me because I was unable to consume the content.

From that day I started basically to talk to people and going to different conferences and trying to investigate, is this a problem that was just challenged or faced by me or is it a problem that all other people are also facing at conferences and events?

So I came up with this idea of solving this challenge and impacting society with inclusive presentations. At view me, at view me we are ambitious to change the way conference presentations are consumed and assuring that the content is usable and accessible.

I will tell you a fact about disability. One in every five people have some form of disability. 70 percent of those disabilities are invisible. So in a conference or in a presentation setting you never know in your audience who is facing challenges or have some form of disability.

So I am going to tell you about situational limits. I investigated and got to know the thing that I faced at my school was basically a situational limitation and it can happen to any one of us. If you are at a conference in the last seat you can struggle seeing the screen. Maybe you can struggle hearing what the presenter is saying. How do we assure that these presentations in these conferences and events are accessible to people who are facing these challenges?

Also these conferences and events should include people who have permanent disabilities. For example, a person, I interviewed a lot of people, a lot of people who were deaf or hard of hearing and asked them: Do you often go to events in Oslo? They were like we go to some of the events because we are not sure if those events are inclusive and accessible to us. My question today is, the presentations that are held today, are

they inclusive? Are they accessible? Are they on a school level or conference or event level?

Like Shaddi talked about a product should be perceivable, operable, understandable and robust. We are working on a platform which is a web-based platform. So it is as simple as uploading a presentation on a platform and then the platform basically allows you to rehearse the presentation one time. It creates subtitles for you, which you can basically fix. And then you go to a conference or an event and you ask your audience to basically just join a room call because every presentation has a room code. Everyone in the audience is connected to that presentation. They can see the presentation from their cell phones.

So every one of us have personal screens. Why not convert those screens into a screen like this? How are we going to solve or design a universal experience or product where a person who has a problem of hearing will generate subtitles for them. A person who has problems with vision basically, he can see the content in his hand. So the idea is that to design presentations or conduct events and conferences where the presentations are inclusive, and I'm going to just end my talk with this thought: We are actually trying to promote this idea of inclusive presentations and doing workshops at different organisations and schools, just to educate people and let them know about the importance of holding such events through the presentation and knowledge that is accessible to everyone.

So if you guys want to know more about the product or we can just show you something after the talk.

>> ANTHONY GIANNOUMIS: Thank you, Taha.

(Applause.)

>> ANTHONY GIANNOUMIS: Taha, I believe you have a booth here at WSIS. Could you let everybody know where that is?

>> TAHA BEN KHALID: We have a booth -- I don't know the booth number. If you guys come, there is a big logo that vase view me inclusive presentations. We can hear other stuff with you.

>> ANTHONY GIANNOUMIS: I would like to encourage everyone to go by the booth, say hi, and see how they can help you guys with making your next meeting or event accessible.

With that we have quite a bit of time where we can chat. Again we will treat this relatively informally. I would love to hear if there are any questions or maybe some comments. You have heard a lot of provocative ideas today, everything from universal design should solve the world's problems to universal design has to take into account the very complex diversity that comes with various forms of social disadvantage shall to understanding how we can use web accessibility as a form of

sustainable development. We heard two interesting case studies of universal design and learned a bit about how artificial intelligence can promote equality for women and people with disabilities.

I wonder if you can reflect on those issues. If you have questions, throw on your microphone. We would love to hear them.

(Pause.)

>> ANTHONY GIANNOUMIS: If everybody is too tired and burned out after a long day, then that's okay too.

All right.

I'll give you guys five more seconds.

(Laughter.)

>> ANTHONY GIANNOUMIS: We have a question up front. Yes, ma'am?

>> AUDIENCE: (Speaker away from microphone.)

>> ANTHONY GIANNOUMIS: Could you please turn your microphone on?

>> AUDIENCE: Can you hear me? Yes?

>> ANTHONY GIANNOUMIS: Could you state your name and where you're from.

>> I'm Priscilla Mora from Ecuador. I developed technology for visually impaired people. I would like to ask you how long it took you to be understand the necessities of people with disabilities so you could develop your applications to do this? How you do it and how you validate the information you have? Because we are trying to do the same in Latin America.

>> I am going to share my story. I had a startup that failed two years back in Pakistan. The problem was I didn't test it with users. I'm a designer by profession. And the way I felt that this was a problem that I faced myself, I didn't start to build a solution. I started talking to people. I interviewed people who were blind. I interviewed people who were deaf. I did some prototypes and tested with them.

Instead of working on this is something where people fail to make a product that is universal, I talked to all kind of people who I believed should be part of a presentation, who I believed were excluded from the presentation. So by talking to these people and knowing that what kind of challenges they face, I came up with a solution, right? And then also if you build something for a person who faces some challenges, you are also like something that is accessible for something, someone who has a problem for hard of hearing, a person who doesn't have any disability, he also benefits from that.

So it is more sort of trying to understand the challenges that people face by interests interviewing them and observing how they go to these events, conferences. Also trying to

prototype some simple mock-ups to them and see how they react on it and improve the product rather than based on my assumptions.

It is a product by people for people, I would say.

>> AUDIENCE: Great.

>> ANTHONY GIANNOUMIS: I will add to that, it is important that you treat this as a relationship building. If you are just bringing them in to give them a cookie and tell them how much do you like our product? This doesn't get traction and won't help you make your product or service better. It is about substantive participation. Every one of the people on this podium have very real experience working with end users to develop our solutions. Shaddi has been working with people from a wide variety of stakeholders for many, many years. Even the solutions that were developed in the last 24 hours at the hackathon, the three students consulted with seamstresses, people living in Pakistan on the ground, consulted with their user experts and groups.

It doesn't take so much effort but it is a long-term investment. I hope you treat it like that.

We have another question?

>> AUDIENCE: Basically I have a question for Shaddi. As he explained today there are a lot of things that can be done to websites to easily make them accessible. As we know, the fact today is that if we look at how big percentage of website are actually accessible, I think we are going to look at disappointing facts.

So what I would like to understand, and through conversations with multiple individuals and organisations, I understand that my perspective at least is that there they are somewhat fearful of even starting to touch the subject because if they are not perfect by launch, they feel that suddenly they are discriminating.

I think there's some keys there to actually address it and I want to understand what is your perspective on the first steps or what can be done better to ensure that web accessibility actually flourishes?

>> SHADDI ABU SERAH: Excellent question. So how much time do you have?

(Laughter.)

>> SHADDI ABU SERAH: No, this really gets to the heart of really the issue. I think it relates to many of the presentations that we're talking about. So I really am convinced, even though I am a wheelchair user sometimes confronted by barriers day for day, but I am really convinced it is not the technology. I have a computer science background. It is not the technology accessibility for me is changing the society. And it relates a lot to the -- I see people with

disabilities and the gender discussion. I think this is something that we can benefit a lot from, learn from the successes there. It is a lot about the perception. It is a lot about, as you say, being scared. It relates to already education, children with disabilities being separated. You already grow up -- I mean, how many people, and this room is actual lie skewed because many of you might be actually having something related to accessibility in your work. But how many of you have grown up with somebody with a disability in your family? Maybe one hand was that? I didn't, right? I didn't grow up.

So you kind of, where are they? Where are people with disabilities? And that then reflects in adult life, as you say, when you are then asked to make something accessible ordeal with disability, then you are afraid because you don't want to do the wrong thing. You don't know how to approach it.

I also have to raise the point there is an aspect of stigma. My mother does not want to have a disability. She just sees less, right? Or so there is a stigma around disability as well. There is this -- there are so many factors that are not technical. So seeing that three, four, five dimensions actually, it is a multidimensional space about seeing the factors for disability. And the technical solutions actually are so simple. It is like putting a ramp in front of the step. It is really the same.

Again, my background was first built environment because wheelchair. But seeing that digital disability is really -- digital accessibility is the same, it is the curb cut. It is the fact that everybody benefits from the electronic curb cut. The idea is that the pavement, when you lower the pavement not only for wheelchair users but bicycles, prams, people pushing trolleys with luggage, with broken legs, you know? All sorts of aspects. Everybody uses that.

The economy of scale of doing that just becomes negligible. Not everything is negligible. I don't know want to down play, but there are many things that are negligible that can be done today. The reasons why it is not being done is a complex issue that we have to tackle at all aspects, including changing the perception, changing policies. There are many studies about accessibility and implementation. It does show that areas, for example, where the educational sector in the U.S. tends to perform higher in surveys that could be a factor that policies in that area and laws in that area are making a change.

So there are many different drivers and aspects that we need to speak about. I will close. I could go on for days on this topic.

>> ANTHONY GIANNOUMIS: Thank you, Shaddi. Any other questions or comments? Yes, sir? Please, introduce yourself and your organisation.

Maybe the other microphone next to you might work.

>> AUDIENCE: (Speaker away from microphone.)

>> ANTHONY GIANNOUMIS: Oh, it's an accessibility issue! Yeah. Not very clear, is it?

>> AUDIENCE: I'm from Kenya. My question comes from the statement one of the presenters made that one out of every persons are disabled and 70 percent of these disabilities are not visible. Meaning actually we have more disabled people than not, than the so-called abled.

And then when it comes to design and technology, we still make it, do it insensitively. And yet we say there are more disabled people now than abled. So where does the problem lie? Is it that most of the disabled are ignorant that they are living with disabilities? Or that we don't really mind? Or we really want to pretend that we are able when we are actually supposed to think the other way around? Where does the problem lie? At this particular age?

>> SHADDI ABU SERAH: Thank you for the question.

When you mention that we are ignorant about this, I think that is where we, what we are trying to do is create awareness. We want people to know that yes, you can -- I went to this inclusive smart city conference which was about accessibility. And then I questioned the participants how accessible was the event itself. How accessible was the presentation itself? And then again it is something that they were like: Oh, we didn't think about this! It is more sort of awareness. As organisers you question yourself. Okay, this is an accessible event. Is everything accessible? Is everything inclusive? Is the content accessible or usable by all?

So I would say my suggestion is that we educate every next person we meet. You guys when you get home, right, you have to give a presentation at your office. Think about it. Think about a person sitting at the back. Think about the font size. Think about the color. There are color accessibility. Which colors basically people face challenges if they have, if they are color blind, right?

So I think it is all about awareness.

Then also providing solutions that are cheap. And that are building accessible solutions is not a tough job. It is just that people need to understand the importance of it.

And once we have that awareness and importance, I think it just will be adopting it. I think awareness comes first and adoption is the second thing that will eventually come thank

you, Taha. Ayanna, can you talk about power and power reels and how they affect issues of sexuality and universal design.

>> Thank you, Anthony. That is where it gets tangible. If you don't get the memo, you don't realize there is another existence you can have and this is a narrative you've already known because you always present with identities you've always presented with.

I have been from realities where I'm in tech meetings and I am making a suggestion for something in the aerospace world and all my colleagues are white men and I say something, I say it again. There isn't a response. This is not fake news. This is my story, my life. Then three hours into the meeting one of my colleagues will say, you know what's a good idea? We should XYZ! People jump up, that's a great idea. I'm like knocking myself, am I awake? I had said this.

I use it as an opportunity to keep people honest and say guys, it's 8:00 p.m. At 4:30 I had said the same thing. People begin to be aware, as you said, of some of the implicit, let's see, there are two sides to the coin. There is one of -- what's the word I'm looking for? It is missing right now, but where you have a certain level privilege of how authentic people may believe what you say to be correct because of the identity you presented and the level of power you can command just because of that and the responsibility that must come with that to be the one to keep people honest and say no.

I will give you a more sublime example. When I got to Zurich, I had to go to the loss lost and found line for my luggage. I was in the front of the line having a conversations and a Caucasian man came up to speak to me to deal with the Caucasian man. He said you were here before you. You can't start. I literally wanted to cry. That is not normally my story. Normally I have to be the one to say to both individuals, excuse me, I was here. You often don't feel heard. You imagine when we take that into the space of ICTs where this can become your career, can be enabling to take you out of socioeconomic strata, the power basis is absolutely existing. We have to empower people to know their rights so they can be the ones who raise their hands and say excuse me and applaud others when they do what should be the right thing for any human.

>> AUDIENCE: Just very briefly, exactly. You know, I fully agree. I want to make the link also to disability from there. And it is very similar. I think that all these coping mechanisms or believing the self-fulfilling prophesy just like the little girl who is told no, no, you can't work at the fire department because you are a girl. The same, well, you can't, I

don't know, drive a car, have a job, whatever, because you are disabled.

And many people, many friends have actually believed that. They grew up that way. So there is an empowering, it is on both sides. There is a responsibility on people with disabilities on their side to come out and claim the rights. It sounds kind of harsh but at the same time also for society and this being invisible in the line -- we should compare notes.

(Laughter.)

Yes.

>> AYANNA SAMUELS: That is intersectional reality, no? Well said.

>> ANTHONY GIANNOUMIS: Any other thoughts or questions?

(There is no response.)

>> ANTHONY GIANNOUMIS: Oh, yes, sir.

>> AUDIENCE: It works? Can you hear me?

>> ANTHONY GIANNOUMIS: Yes.

>> AUDIENCE: Thank you. Congrats to the whole panel for the presentation and excellent interventions here. My name is Ricardo Garcia. I am with an Australian company called Accessibility Oz. I have been working in Spain with blind people organisations before that, blind people in Spain, in U.S., in the Jordanian Institute of Technology.

I want to throw in some pessimism here and share the thoughts. It is not only pessimism but also opportunity.

We have all her the term digital transformation. Everything going digital, everybody transforming the organisations from a cultural standpoint as well. And transforming all the processes, making them digital, paper -- zero paper and so forth.

Now I want to ask the panel here, and I know this is going to start a whole new conversation, but.

>> ANTHONY GIANNOUMIS: That's why we are here.

>> AUDIENCE: I have been doing some research trying to Google that term period or tied to accessibility. And it is very hard to find any results at all. Right? So what do you think the future is going to bring us if we don't do anything about it? What I see is the gap. Digital transformation is going to, the pace is becoming exponential while ICT accessibility adoption is linear. It is very, very, you know, it is linear and the pace is very slow. All right?

So what can we do? There's many things we can do, but you know, I will eave leave you to answer that.

>> ANTHONY GIANNOUMIS: Sure. I think we should hear from the future of their perspectives on what we can do. And maybe what are some challenges we might experience. So Rosie, Alinya, Hafsha, do you have comments to make?

What would you like to see out of your university or the world around you?

>> It is a little bit hard to answer this question for me. But I am originally from Ukraine. I live in Norway now, like five years almost.

And for me it is like big huge difference between Ukraine accessibility and Norway. For me it is not linear, like you say. It is like a big jump. In my country it is, I don't know about disability people, but like mothers with baby, they cannot go through the city because it is like not possible actually.

So it is now a completely different situation. Nowadays there are many different examples all around the world. There are many different countries that can just use these examples and just jump to the future, not just try to do it step-by-step with their own problems and their own mistakes.

>> ANTHONY GIANNOUMIS: Thank you so much. Hafsha, would you like to talk?

>> HAFSHA SHAHZAD: Can you guys hear me? Okay. I totally agree. In Pakistan it is the same situation. Maybe a bit -- maybe Ukraine is a bit better than Pakistan when it comes to accessibility. So I totally agree on that.

I don't have any more comments actually on that.

>> ANTHONY GIANNOUMIS: That's okay.

>> HAFSHA SHAHZAD: If you are talking the global world, so probably we can make this jump. For you in Australia or other countries it will not be so ... visible? But for our countries and for the whole world it will be, I think so.

>> ANTHONY GIANNOUMIS: Yeah. When I teach this topic to my students I often have to tell them there's not many bright spots where it comes to universal design or sustainable development. There is a lot to be angry and frustrated over and disappointed in. When you find something that is good, something that is working like the ITU having sign language interpreters and having captioning, make sure to acknowledge that and to give credit to these organisations that are doing a decent job or at least trying to make an effort.

That carries a lot more purpose and a lot more intent than there is so much to be upset about in this field.

Shaddi?

>> SHADDI ABU SERAH: Maybe not good to go home depressed like that. Maybe that is what keeps me going. Maybe I'm just living in my magical world and trying to be optimistic.

But I think this debate, you can slice and dice the things in many ways. Like is AI going to create jobs or kill jobs? Or is the will world getting better? Is it getting worse? Is it the same?

I have a different shade of view. I don't think the digital transformation -- yes, there are things that are exclusionary and there are challenges that need to be tackled but I wouldn't say okay, the technology itself. So for example, getting here I use a lot Google Maps, not making any advertisement, but the bicycle route. I use that. Not invented for wheelchairs. Not invented for accessibility, but I see exactly which route is going to be how steep and which one I am going to take.

So technology provides immense opportunities. This may be a bit of a hacking, right? It wasn't intentionally thought of that. So there are immense opportunities that even if the word "accessibility" isn't in there, now things are called text-to-speech or voice commands or whatever. Elevator is not called assistive technology or accessibility either. It is part of a building. There are many things that are built in that are improving. If you want to make that calculation, you have to consider this your balance as well and then would really see how far apart is it going.

>> ANTHONY GIANNOUMIS: Awesome. On that hopeful note we will close this session, reasonably on time. First of all, thank you to the sign language interpreters and the captioner. We sincerely appreciate your service.

(Applause.)

>> ANTHONY GIANNOUMIS: Thank you to all of our panelists. Again thanks to the three students who did incredible work these last few days. Bravo! Have a lovely evening.

(The session concluded at 1848 CET.)

(CART captioner signing off.)

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