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CONNECTING INNOVATIONS TO PERSONS WITH DISABILITIES IN ALIGNMENT WITH THE SUSTAINABLE DEVELOPMENT GOALS: AN OVERVIEW OF THE INNOVATION ECOSYSTEM FROM MADA

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No English translation)..

For those who speak English, my sincere apologies, in a few minutes you will be able to hear the English interpretation through the interpretation icon below the screen.

Technical moderator, you can play the video.

Thank you. Ladies and gentlemen, this session as recalled, I would also like to bring to your attention that your mics should be placed on silence. The WSIS Forum 2022 for this year, I hope the slides are clear, so this year actually we'll talk about solutions and this session we're talking about linking or connecting innovations to Persons with Disabilities in alignment with the SDGs, now we'll take a look at the ecosystem. Hoping you will enjoy this presentation.

Today's session will include six panelists or six speakers in which they will be talking about -- they will address actually different programmes of Mada innovation.

Due to time constraints, I have not introduced the panelist, I will introduce them now according to their presentation.

First, we have the objectives of SDG, quality education, ensuring equitable education and learning, also we have goal 9, enabling Persons with Disabilities to live in different aspects of life, we have the Morocco treaty and other conventions. All of these conventions and agreements were developed for ensuring a decent, dignified life for Persons with Disabilities in their different life domains. In the State of Qatar, we have a comprehensive strategy for Persons with Disabilities . we have digital inclusiveness or inclusion strategy, all of these strategies contribute to the establishment of Mada centre which was established in 2010 which is responsible for digital inclusiveness to build a digital community for People with Disabilities and at Mada we ensure the provision of digital inclusiveness for all where all ICT and innovation should facilitate the lives of the Persons with Disabilities ..

We are at Mada, we do not walk in isolation, we have a collaboration with different sectors and the State of Qatar, higher institutions, all to guarantee a decent life and dignified life, bright life actually for those segment of people, Persons with Disabilities.

Without further ado, first we will start with the first speaker, Mada innovation programme, he's the head of the Mada programme in which he will be providing us an overview on the programme over the next 10 minutes.

The floor is yours. Please.

>> ACHRAF OTHMAN: Thank you,, for this introduction.

It gives me pleasure to be here with you today to talk about the programme..

I thank you for your introduction.

Mada centre is actually a centre for excellence at the Arab region where our centre works with strategic partnership to support education and culture and society in order to be more inclusive by using ICT. Qatar has actually achieved the first place in terms of its initiatives in ICT according to United Nations initiative.

Why? Why work with digital access and technology and why do we say it is very important to develop and to provide further solutions? Now we start to define innovation. Innovation defined as creating new knowledge that can be implemented or applied to practical problems and issues.

As you know, technology is the ongoing develop that

will result in improving the lives so so many with disabilities or elderly.

This is proven by researchers and study.

The ongoing development in the area of creativity of assistive technology and digital resolutions to promote life of People with Disabilities. That's why this innovative solutions could contribute largely to support the ability of Persons with Disabilities to study and to perform the academic, professional tasks as will with the participation in life as in walking on an equal basis for all.

That's why we have designed a new ecosystem integrated ecosystem that will promote and support people with the ability to access ICT.

This programme has been named as Mada innovation prom, a platform that provides solutions for digital accessibility and in terms of ICT as well as providing assistive technology to determine the needs of Persons with Disabilities or elderly as delivering, organizing workshops, assisting and organizing the national, regional competitions for the best interest and culture. All elements of this ecosystem of Mada innovation programme to support new Arab solutions in relation to digital accessibility. This ecosystem consists of 7 key components and this will support them through technical solutions to help them access ICT. This consists of segments and marketing and methods of finance, abilities for design innovation, data, strategic partnership, implementation mechanism and best international practices and policies. All components aims at supporting people to access ICTs through Arabic language.

With respect to the first component which includes methods and mechanism of finance and support. We will work closely with the financial institutions and incubated support, innovator, creative, researcher, academics, businessmen and key stakeholders to develop solutions that will respond to the challenges and obstacles and the needs of People with Disabilities.

Mada innovation programme is a key element to support start-ups and SMEs and businesses through four tracks, approval of devices and technological solutions. Second track, support the automization offered with technological solutions and localization of this technology in Arabic language and with respect to the third, international, regional, local competitions, we work closely with our partners, for example, where we design an international competition including our partners of UNESCO and local like

others to organize local competitions, including hackathon.

The fourth track includes the direct grants towards entrepreneurs, start-ups, innovators to develop their ideas that will add to develop the prototypes of the projects.

Here are some images of the competitions where annually designed different activities and hackathon at competition in order to increase the solutions.

In this programming, there can't be more than 300 participants , two teams, one as Mada, regional competition, more than 1,000 participants from the Arab States and we have so far four winners where we have the international competition, we have more than 300 participants and they have four winners over the last three years.

With respect to the direct grants and localization and urbanization, we are pleased to announce that we supported more than 47 innovations in order to ensure that it they can ask the market and as a result, more than 7 million, you can actually get further information about this programme through our website. Of course, we work in the area of data in order to increase the amount of data used by developer, researcher, teachers, educators as well as the idea to develop technological solutions and it turns out that there's a big -- we have a big amount of resources that can be used in developing new, unique innovations and we work closely with People with Disabilities to increase the number of data, for example, data innovation to teaching Arabic to those with visual impairment or blind and we have developed the Arab braille platform as a specialized platform that has come as a result of efforts of a specialist.

This is an open resource that's used to increase the applications that are braille based and as we impact to increase the solutions for deaf people or people with their hearing impairment that aims at developing the first virtual -- that can provide sign language in Arabic language and at the same time we have developed the first database, Big Data base that consists of all the sentences of sign language in Arabic and it will be an open resource. We're pleased to announce that the Arabic language translation for the web content, in collaboration with the international network, W3C as Mada has developed, we managed to harmonize all of the technology in collaboration with Arab experts in this regard and in all of the fields as we have in terms of disability as we'll have difficulty of communication, we have designed some tools that are aligned with Arab context where we have allowed all

researcher, academics to publish their latest innovation and research in terms of accessibility and we're inviting all to participate.

All these experts and data and researchers, we would -- these are all subject to review and assessment by our experts in order to approve all these projects to ensure that they are of the quality as in building further networks with different countries, universities, as has higher education institutions.

We're pleased to launch a programme that supports an increase in solutions like the Mada Ambassadors and the establishment worldwide for accessibility that innovators with disabilities can develop their solutions and ideas.

In conclusion, I would like to thank all those that contributed to the success of this important programme, including our regional international partners and our partners in terms of accessibility and communication and the sponsors of Mada.

My colleagues now, during the next presentation, they will talk or dig deep about the innovation that's been supported by Mada.

Thank you so much.

>> AL-ANOOD ABDULLA AL-ANSARI: Thank you for this enriching, constructive details about Mada innovation programme.

An outcome of this programme, it is very important as the language of sign language using Qatar dialect in which Dr. Oussame El Ghoul will talk to us about this particular project.

>> OUSSAMA EL GHOUL: Thank you. I have the pleasure at the outset to present this project which Mada started to develop since 2019. This is a project that has a number of objectives. First to establish a platform for automated sign language or other sign language by using a virtual character we will learn about the reasons that made Mada establish this project since 2019.

In fact, deaf people actually face a lot of issues in relation to communication, this is not confined to accessibility to sign language or word degradation but covers reading and accessibility to all information, written information in which there are different services and devices.

This is merely due to the 80% of deaf people actually suffer from issues related to reading or writing.

For example, the self-service machine, including the ATM that contains written information, this is one of the obstacles on how to access this information by deaf people.

Also deaf people face a number of difficulties in terms of accessing website and I personally have communicated with deaf people and they told me literally speaking that they have concerns or fear reading this text and the web and they're difficult and consist of Arab complicated sentences that cannot be comprehended easily, as with other difficulties in terms of accessing information, in particular some information like in metro stations, airports, where all of the services are based on some -- they will not access these services.

In this context, our project, the sign language project, it aims at first providing a number of programmized tools that help them make use of assistive technology including to help them to read text on different websites and to be transferred into sign language by using three dimensional virtual characters like Mohammed to the left of the screen, this provides a number of automated translation tools or machine translation tools. These tools enable web developers or application developers or programme developers to leverage on the services as including this virtual character and the applications and their own websites.

This project aims at developing a database to enable researchers to study the sign language, the special linguists, this project provides different tools for website and application developers to facilitate the development of this website and programme to transform this data.

We have announced this programme in late 2019. We have launched this project where the team started working in this project, mainly those that benefit from the programme, they're the deaf.

This project provides solution and applications and sign language where we provide an environment for deaf to help them to access information.

Also this programme benefits linguists where the project provides a number of video clips that can be used by researchers as well as provisioning a number of data in terms of hand movement, facial expression, et cetera. All of this data, it will support the programme developers and innovators to develop their own programmes that would support sign language and benefit deaf people.

With respect to the stages and the components, the elements of the project, it consists of five key stages and five key components.

First, it is virtual character Mohammed, his name is Mohammed, he was evolved in a way to look more real and to

move naturally and spontaneously in order to ensure the quality of translation as high as the same time to enable deaf to understand the hand movements and expressions that should be available in sign language.

In addition, this project, a tool or programme that serves as automated translator of sign language or interpreter, where this algorithm, it translates the text, written text, translating them in sign language, into proper sign language actually and at the same time we have established a system for innovation education system for Arabic language which enable us to write signing language or give accessibility to this language by using computer keyboard where we can benefit from the system at a later stage for machine translation, automated translation to move this virtual character Mohammed. Mada centre provided a warehouse of algorithm to recognize the movement of body and facial expression in order to extract data, extract and monitor the data in order to be used later and actually controlling the movement of this virtual character.

The fifth stage, the fifth element, it is an important sentence. This portal provides a Big Data base that includes the most freak went sentences used in sign language where we have provided 4 a A.00 sentences which were included in this platform.

How? How did we achieve this project.

Actually we have first registered the movement of sign language and all these movements, they're real, either used by sign language interpreters or deaf people. This virtual character repeats the same movement that were registered or recorded in the web applications and we have recorded the movements and data as well and in the sign language studio. As you know, Mada centre, we're equipped with a sign language studio. This studio, it is equipped with -- equipped with videos and other devices to record this movement.

This studio, it contains four cameras, first camera is a place to the right of the person making these movements or sign language. One to the left, second to the left, another one in front of him and we place on the head of this person doing these signs and the camera, this camera which was a place on the head to monitor the facial expression and the movement of his eye due to the importance of these movements and its role in sign language.

Of course we use sensors as devices that are placed on the hands. These gloves consist of sensors that can record and track the movements of the fingers and are recorded in

a certain database.

The studio is equipped with devices components to track the movement of hands where the person here with this vest that consists of more than 13 sensors to track the movements, all of this data, they are recorded in a special database and then they will be used to move the virtual character.

This video actually explains on how we track the movement of hands and gloves which is actually equipped with more than 15 sensors and all of the data will be actually integrated or sent to the computer in order to recall them and the data, it will be used to move the virtual character.

We have developed algorithms to monitor the facial expressions, the facial movements where we have placed a camera on the head of the person who is making these moves. We have recalled the videos and we have extract the movement of eyes and facial expressions by using AI, artificial intelligence and algorithms that have been developed by Mada centre. All of the data again, it is used to control the movement of the virtual character.

Now I'll talk about the stages of implementation.

First we have built this studio in January of 2020. A team of specialists of deaf and sign language interpreters, it was started in February of 2020 where we have delivered 6 focus group sessions in March, 2021 we have finalized the shooting and videotaping and recording of more than 4,000 sentences in sign language according to the devices that have just shown where we have reviewed the sentences to include the quality of the recordings, that took place in January of 202 -- sorry, June of 2021.

In October, the same year, we have launched the prototype or the pilot of the project where you can see this movement and how can these movements of this virtual character can mimic or reflect the movement of the human, the original man where it looks natural where we have used a number of algorithms about learning and AI. Artificial intelligence.

Then we have included this virtual character and Mada website. You can visit the Mada website, www.mada.qa. This virtual character does do automated or machine interpretations where you can place the mouse, the arrow on the text that you wish to be translated and wait for some time where this virtual character, this guy, will do the translation as well as you can minimize or maximize the size of this virtual character according to what you need.

This is the first implementation of this virtual

character. At the same time we have finalized another implementation of this virtual character, the virtual reality that aims at teaching deaf people to using virtual reality where the different version can use this device equipped with the glasses through which it can see Mohammed through using a 3D glasses, using this technology.

Then this deaf person can access the 3D application that would help him to learn sign language or by using sign language, and this programme actually has been published and peer reviewed journal in the area of learning and the latest researchers in relation to teaching and learning distantly or remote teaching.

>> You have one minute left, please. One more minute.

>> OUSSAMA EL GHOUL: Six of the deaf that participated in the project, where we have actually delivered six focused groups such as in order to benefit from the feedback in order to improve this virtual character, at the same time, five experts and researchers participated in this project, three technical and five developers where we have completed more than 34 videotaping session to record more than 4500 sentences so as you have seen a while ago, we have four cameras placed, four sides or direction where is we have recorded different types of movements, movements of hands, movements of the body including facial expression.

Thank you so much.

>> AL-ANOOD ABDULLA AL-ANSARI: Thank you. Thank you to you and the team that have actually helped to achieve this outstanding project as is Mada. What's next, it is the programme's -- this provides the sign language and at the same time provides facial expression in order to ensure that the feelings will be communicated clearly to people with hearing impairment or deaf.

Thank you.

Now our next speaker is As-Dana Al-Mohannadi in which she will take us on a journey on accessibility.

The floor is yours, please.

>> AL-DANA AL-MOHANNADL: Thank you.

If gives me pleasure today to present my paper under the title ICT accessibility journey in community.

To achieve SDGs 230 and the objectives of SDGs 2030, Mada centre developed and implemented innovative programmes in ICT in museums for Persons with Disabilities as well as others. In this context, I'll discuss the most important achievement made by Mada centre, including the Mada centre for innovation programme in transportation and museum authority.

The key topics, first transportation, accessible transportation, examples of applications on accessible transportation, museums that can be accessed, and first accessible transportation, the transportation enables and play as key role for enabling Persons with Disabilities and elderly for transition and to work independently in the area of employment.

Accessible transportation are those transportations that are of high quality that supports elderly, Persons with Disabilities to reach different destinations and the measures of new ICT, like AI, robotics, to expand the accommodations provided in the area of transport.

To learn about the concepts of the journey of transport we can learn about accessible transportation from different stages of planning, transport, building, designing, same times, railways airports, private transport, it is very important effort needs of different segments of Persons with Disabilities including elderly.

One of the key elements of accessible transport, it is accessible building, audio material, digital information and statistic information.

This is one of the examples of accessible transport. How this kiosk looks like, it should be accessible by all people, including those using wheelchair, elderly as well as blind people that covers the assistive key panels with respect to the screen and the color, the size, the buttons should be to the right and using the language as well as providing alternatives. All of the alternatives or pictures instead of text.

This is digital platforms that can be accessible, these are comprehensive devices that provides criteria of accessibility like websites, alternative services as well as mobile. That's why we have an agreement with a braille company to ensure accessibility. These digital screens, a proposed innovation of the use of Mohammed, this is the Firth virtual interpreter of 3D that translates fixed information.

Now talk about accessible museum, museum that can be accessed. One example, first equal guidance for Persons with Disabilities, physical guidance, those are systems that direct people, physical violence and promotes the understanding of the surrounding area.

The elements, it was the current user which was the direction of how can the user access or reach the destination that would help them to decide on the road as he tried to reach the destination required, and the user reached the desired destination accurately.

Another example, in collaboration with the tourism authority, we have implemented this direction guidance in collaboration with the company and secondly, the 3D screening, the project in collaboration with the national Council of tourism providing objects implemented by using the 3D screening for the people with the visual impairment to promote the understanding, appreciation, the technical objectives.

First, you have the bar coding, the Mada centre, the Arab museum working to translate the -- provide translation by using QR bar code where each video provides an Arabic language interpreter in order to provide independent, accessible experience.

Now, we have the virtual tool project to provide an experience for all peoples with disabilities and elderly where we have developed a virtual tool that can be easily accessed by using database and sources provided by the museum which has different features like audio files, text files, as well as recorded images and scientific and historical content that can be easily accessed.

Finally we have the robotics used for museum tools.

The purpose of using robotics to provide a tool for visitors as well as providing them with all guidelines, including emergency exits.

Thank you so much.

Thank you.

I myself have went through this journey, it is a very amazing experience to have or to provide accessible to museums and we wish in the future to be generalized and expanded to cover all historic and touristic sites so that everybody can enjoy the landmarks and the museums of the State of Qatar.

Now we'll move to Mr. Ahmed El Sheikh who will talk about innovation and that will support employability and education.

The floor is yours.

>> AHMED EL-SHEIKH: Thank you.

I thank my colleagues who actually presented a very enjoying, a very enriching presentation.

I will just give some of the latest innovations and solutions that have been actually designed by Mada and support education and employment in Qatar and beyond the State of Qatar.

The purpose of my presentation is to present the efforts exerted by Mada centre to support the ecosystem in terms of ICT accessibility as well as supporting innovators to achieve the SDGs objectives as well as the 2030 in

relation to employment and education.

In addition to the aspects of education, decent work work, as well as addressing inequality, as well as sustainable cities, as well as presenting partnerships to achieve the goals.

This requires the promotion of ecosystem in Mada as others.

>> Could you please maximize the slides.

>> AHMED EL-SHEIKH: Based on the Mada strategy that is aligned with Qatar vision 230 which aims at localizing the principle of digital inclusivity and building technological society accessible by People with Disabilities and according to the strategy to launch the potentials of ICT to establish accessibility platforms including development of solutions in relation to assistive technology.

Also we contribute to promoting technological innovations either in the Arab state or other states as well as the provision of latest technological -- assistive technology in ate lab region and I believe the project is a unique project and that's why the contributions of Mada to the strategy of innovations locally and otherwise is mainly the one we have focused in our strategy.

So consequently, Mada contributes to enabling, empowering education and employment through ICT and assistive technology as well.

That's why we have contributed to the effort to establish and have a comprehensive education system at all stages, including the long live learning as can be used in neighboring countries and the Arabic states and in addition we promote the concept of long life learning in the schools.

In partnership with communication.

With respect to -- Ministry of Communication.

With education, we promote Article 27 of the U.N. agreement for the Rights of Persons with Disabilities which guarantees their rights to work on equal basis with others as well as ensuring their independent livelihood and accepting work freely.

For this, this requires an open labour market, comprehensive market that can be open for everybody without any kind of impediments.

Now, I will present and show innovation, we have talked about Mada innovation programme, we will show some that have prixed an effective role in education and others as well n is assistive technology solutions that have been supported as has been said, supported and approved as well and now I will just tackle some of the innovations that's

been actually promoted and approved by Mada centre and I will mainly focus on education as well as employment.

The first of the programme, the innovations, the applications, the platform, this is a platform that has the competition of 2019 which has been actually approved by Mada centre as one of the key applications that helps to support integrated and comprehensive education and interactive platform that helps people with the learning difficulties and this platform currently is used to support students in science and mathematics and it is available in Google store for those who wished to buy it, it was available in Google store.

It is very attractive and interactive as well.

This is the logo. And at the same time, it provides different games and attractive games as well. Another application that has proven to be effective in education, as education encyclapedia that was supported through Mada innovation programme in 2020 and 2022 and it won a competition and it is an assessment tool to determine different types of interventions at every stage where we have contributed to improve the reading, writing skills or literacy skills of a student.

This is the interface of the application, you see the screen, it is available in different stores and also through direct grants, Mada centre developed a learning application which is one of the excellent, outstanding applications which is -- which came as an augmented reality and virtual reality and is offered in two languages, Arabic, English, and this application, it is based on the three dimensions symbols and it is available in Google and Apple store.

These are some images related to this application.

This is one of the other services provided and we have provided the finance and experiences and this is widely used in different parts of the world to support learning of students with disabilities or especially those with mental disability and this programme has been emphasized and supported and financed from Mada in order to fulfill the need of the student of different age groups and it has been used and in later stages of the Arab region.

Now we're in the process of upgrading it according to the latest updated version and based on the translation services by the Mada centre.

This is the logo and therefore if you wish to download this programme -- also we have device that supports comprehensive classroom learning for those with individual impairments using braille and language to support the

self-learning and this programme has been actually shown during the competition 2021 and this is actually friendly used on the device and through literacy through braille. Also through direct grant track to support innovation we have developed the communication application using the symbols after we have completed these symbols, we have developed other electronic applications and this application has been further developed by using the symbols in relation to communication and the programme. These are consolidating an alternative symbols to be used to communicate in Arabic language. What's special about the symbols, it is locally and contectualy suitable for those that suffer from autism spectrum and this is the logo of the application and this programme application can be downloaded from different stores and this is the interface of the programme as you see in the screen.

My colleague, she has given some explanation and further details on this application that can be used in different means of transport as well as in museums for people with visual disability to facilitate the accessibility and the movement of people with visual impairment or disability to help them to move from their houses to their work and for transition inside buildings as well and we have implemented this application and it was very effective to facilitate the movement of people with visual disability and impairment as well as this application can be implemented in other spaces that will help people with visual disabilities to actually move safely and comfortably inside buildings and between other buildings.

>> 2 minutes left.

>> This is the application and the interface, this is some key features of the selected applications among other applications and this we cannot deny that these applications or programmes requires training and support by Mada. Most of the programmes and applications are free of charge.

With respect to braille, braille programme, it is actually a simple programme to help people learn and to understand symbols of braille. This will help People with Disabilities find jobs or transport. This can be placed in metro station, in offices, public service centres and this is what can be used by employees of disabilities.

Thank you very much for this. I conclude my presentation.

Thank you so much.

>> AL-ANOOD ABDULLA AL-ANSARI: Thank you.

You have actually successfully presented different innovations that support Persons with Disabilities of different segments and at the same time of course we cannot deny that teachers are trained to help the students to benefit from these technological solutions that may contribute to the learning.

Now we move to Fadi Adnan to talk about accessibility monitoring tool.

>> FADI ADNAN:

I would like to thank as well our distinguished participant.

It gives me the pleasure to talk about one of the most important projects which is Mada monitor tool in the context of improving accessibility to the Internet for People with Disabilities, we have developed the project that will assist them, to assist the performance site of which they fulfill their international criteria, WCAG.1, this is a standard criteria with different recommendations to make sites accessible the monitor tool, it is actually based on the guidelines in which we have used algorithm to determine the accessibility tool websites. The purpose of the tool, it is to audit the website and to find any mistakes and the percentage of accessibility, you can see here these are a number of sites where they are actually monitored and audited and then we issue the percentage for each site and each site has been defined according to -- according to the relevant key stakeholders that's benefited from the sites, including education, government, culture.

I will show you some figures about the average, the percentage of the government website, 83%.

The website that received more than 90% of accessibility, it can be considered and one of the accessible -- whereas those who list them between 50 to 89%, these are very weak and may not -- I may not receive accurate approval whereas those who went from 0 to 70%, the accessibility, it is very poor and difficult and they need improvement in order to increase accessibility, increase the percentage to reach more than 90%.

The assessment of the tool is an automated assessment that determines the percentage of actually compatibility or alignment of this website through the international guidelines where we assist at the same time the difficulty or the degree of difficulty of using the websites where Mada since -- the websites, manually, they benchmark them, they compare them with automated or assessment and the percentage of automated accessibility increased or reached

more than 9% the purpose of this tool to support or to help us to identify the percentage of accessibility.

As you know, it is not difficult to conduct and assist manual assessment for 300 websites, this tool actually, this tool, it facilitates the process and it will be better and easier to use automated assessment to determine percentage of accessibility before we start manual assessment.

There are so many opensource tools that can be used to discover mistakes that these tools do not provide percentages and they at the same time do not actually review all of the website pages. That's why we have developed the tool that could actually screen more than 600 pages for each website that can actually come up with the results, including a report that consists of the mistakes of each page and how to address the mistakes.

Then we can include the report where Mada team that includes in this report, automated, this mechanical screening, or surveying in addition to manual assessment, they actually submitted to actually correct the mistakes to increase the percentage of accessibility.

The mechanism of this tool, the first step, this tool, it conducted the scanning for the homepage as well as entering each link and continuing this scanning that will cover all of the pages of the website as we see here, when we use this tool, the first process, it is the homepage where we actually extract all of the links, including news, services, activities, in addition to other links, and then the next step, as we enter all of the link, one after the other and at the same time they extract different information, including training, consultation, entering the accessibility services and entering where we actually -- this website uses what we call penetrating of the pages and all of the information is placed in the waiting list and in storage.

Second step, we do a kind of survey or scanning, scanning all of the images, titles, texts, lists, and we have the percentage of problems or issues related to digital accessibility.

You'll need to conclude, please, wrap up now.

>> The scanning for the elements of the web, you see the logo website, scroll down, text all links, they are checked by the machine and finding the mistakes according to the algorithm and then providing the percentage of the page, at the same time, combining all pages and to come up with the total percentage that covers all of these pages which represents the final outcome or the result.

There are so many advantages of the tool, including the following, developing the report to what extent this link can be used easily, and if it is a friendly user where we manually check the website to determine if this website can be accessed easily or not.

This tool consists as a mechanical assessment and manual assessment.

Second, the classification of websites according to the entity that the websites belongs to, like culture, sport, government websites, including a list of the websites approved by the Mada centres for establishing a code that includes the sign for approved website in order to control the design and the approved entity website.

Finally, as controlling the scanning mechanism, where we use -- where we can operate or run the tool on a monthly basis or we can run it on one website or all websites that decide a tool, you can visit this tool.

Thank you very much.

>> AL-ANOOD ABDULLA AL-ANSARI: Thank you for this adequate explanation when you talk about, as you say, as you know, the tool, it is a very important tool that will measure the accessibility of the website. As you know, most of the government entities, they have websites and they're more accessible, the website, the more beneficial for People with Disabilities, last but not least, Mr. Abdulla Al-Emadl who will talk about how to implement the accessibility policy.

>> ADBULLA AL-EMADL: Thank you. We'll talk about how to achieve digital accessibility for all, which we'll focus on the UNSDGs, according to the WHO, World Health Organization, the total number of people who has -- people who have some type of disability, 15%, compared to 1 billion people around the globe, and this figure is growing due to the elderly people and an increase of chronic diseases. This classification depends on the definition of disability and the interaction with the personal and environmental factors. For example, we have highlighted this person suffers from visual impairment or disability. This person suffered from visual impairment and environmental and personal factors that may effect his ability to participate or to engage in the digital lives, this is the big challenge that people with disability face as the inability to access information as digital services available due to the lack or failure to adhere to the international criteria in relation to digital accessibility.

Here we wonder why still this programme exists and we

could not address it. This is due to the following reasons, lack of awareness among individual institutions on the importance of digital accessibility.

Where they consider this matter as something optional and it is not that important, it is not part -- it is not among the priorities.

Second reason, it is lack of policies or by laws, mandatory by laws and policies in relation to technological or ICT accessibility.

Here comes the role of actually integrating digital accessibility and policies in order to bridge this gap to ensure accessibility to the available information and services which will promote the United Nations SDG, including the right of People with Disabilities as well as this will support the objectives of sustainable development and here I focus on the three of these, quality learning, quality education, the goal number 4, sustainable cities, sustainable local communities, same time, addressing inequality.

Now, I will focus on the policies related to each of the three goals.

First goal, quality education. Quality education should ensure the provision of comprehensive, fair education that will provide long life learning opportunities. An aspect that will help us to support this goal is providing comprehensive digital education through policies and we can address all of the obstacles or challenges that may hinder the accessibility to school curriculum and resources.

There are so many obstacles that students with disabilities, which they face that will prevent from accessing school curriculum and we have the environmental challenge or the obstacle which includes the lack of training for teaches and how to interact with the students with disabilities. That's why the justification should ensure the provision of comprehensive learning opportunities, this will include the local capacities of teachers to ensure that different curriculum and the learning platforms, they can be easily accessed by all students and in particular, those with disabilities.

Finally, through these policies, this will raise awareness of educator, teachers, decision makers in relation to the importance of inclusive learning for all students.

Goal number 10, to reduce inequality, now I will focus on the websites and mobile application that will be accessed, the role of our policy should address the

challenges or obstacles that may hinder or prevent students from accessing ICT, actually there are so many obstacles and challenges that I cannot list them all due to time constraints. I will give a few of them, some examples, for example some websites offer videos that could be easily accessed by people who suffer from visual impairment or blind.

As my colleague had said, Mada centre actually measures the accessibility of this website and that's why the role of policy here comes to ensure the implementation of international guidelines when we design the applications and website, including mobile applications.

What are the ways to actually bridge the gap or to address this kind of inequality as the -- as to overcome these obstacles that might prevent people from accessing the ICTs, especially People with Disabilities.

That's why through policies and bylaws, we will encourage the individuals and the media institutions to include digital accessibility in the processes like using sign language or adding captioning system in the visual content.

Another important domain is the accessible social media for Persons with Disabilities . talking about the means of communication, accessible means of communication and that's why we need to address all of the obstacles that prevent those individuals from accessing communication and services.

I believe, one of the most important areas that accessible procurement is to ensure that any new programme or any application should match the digital accessibility criteria and guidelines and at the same time we need to raise awareness of institutions and organizations on the importance of including the accessible devices, same time supporting manufacturing and development to develop accessible solutions and finally, last -- the last, 11, the local cities and communities, sustainable local cities and communities.

Our policy focuses on making sure that all solutions and devices should actually comply with the Smart Cities criteria that can be easily accessed by People with Disabilities and same time incorporating the digital accessibility and digital solutions and our systems and to ensure that they can be easily accessed by People with Disabilities and it should be taken at an early stage when we design Smart Cities.

Thank you so much.

>> AL-ANOOD ABDULLA AL-ANSARI: Thank you.

We have just heard from you talking about the importance of policies to ensure the digital accessibility and different community sectors and different life domains and the implementation of the policies ensures that all relevant entities were taken into account Persons with Disabilities either in education or will we establish Smart Cities and this is what we aspire to in the future to include that this accessibility should cover all different live domains.

With this, we conclude this session.

I would like it thank awful the participants including our speakers for the participation. Before I conclude, I would like to invite you to watch a short video clip about our international partners.S of digital accessibility. (End of scheduled time).

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