THE **ICT OPPORTUNITY** FOR A **DISABILITY-INCLUSIVE DEVELOPMENT** FRAMEWORK

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DISCLAIMER

THE **ICT OPPORTUNITY** FOR A **DISABILITY-INCLUSIVE DEVELOPMENT** FRAMEWORK

*Synthesis report of the ICT Consultation in support of
the High-Level Meeting on Disability and Development of
the sixty-eighth session of the United Nations General Assembly*

September 2013

FOREWORD

THE ICT OPPORTUNITY FOR DISABILITY-INCLUSIVE DEVELOPMENT: WHY NOW?

The High-Level Meeting on Disability and Development of the sixty-eighth session of the United Nations General Assembly will be a key milestone in securing the role of persons with disabilities in the process that will define the post-2015 development agenda. This opportunity cannot be missed. With one billion persons living with disabilities, 80% of those in developing nations, a sound global development agenda cannot ignore disabilities, a key driver of exclusion and poverty.

Fortunately, the remarkable rate of adoption by Member States of the United Nations Convention on the Rights of Persons with Disabilities since 2007 demonstrates a strong universal support for a disability-inclusive agenda among Member States. In effect, the Convention is not only a Human Rights treaty, the first of this millennium, but also a blueprint for sound development policies and programs to ensure the full participation of person with disabilities in all aspects of society. The dispositions of the Convention must be implemented and the post-2015 development agenda should reflect its guidelines on accessibility to ensure the social and economic inclusion of this important group of the global population.

Among those accessibility issues, removing barriers to accessing Information and Communication Technologies (ICTs) by persons with disabilities is of paramount importance. In today's world, with the ubiquitous impact of ICTs across all sectors of activities in all countries, no one should be excluded from using mobile phones, the Internet, televisions, computers, electronic kiosks and their myriad of applications and services including in education, political life, and cultural activities or for e-government or e-health to cite a few examples. Being excluded from these ICT-enabled applications implies being shut down not only from the information society, but also from accessing essential public services, as well as from the opportunity of living an independent life.

In this context we can say without any hesitation that ensuring accessible ICTs for persons with disabilities and expanding access to these technologies, as well as to assistive technologies, should become a key element of global, regional and national strategies to remove the remaining barriers faced by persons with disabilities. In other words, ICT must be an integral part of a disability-inclusive development agenda.

This is the main message that results from the ICT sector consultation in support of the High-Level Meeting, a joint initiative of the Broadband Commission, G3ict, IDA, ITU, Microsoft, the Telecentre.org Foundation and UNESCO. The consultation, which has mobilized relevant expert views from around the world, has identified the key priorities that should be taken into account in the coming years to maximize the contribution of ICTs to enable the social and economic inclusion of persons with disabilities. I invite all relevant stakeholders to go through these findings and to be involved in the implementation of the recommendations proposed as a way forward in this report.

We cannot miss the opportunity to use all available tools – including ICTs – to build an inclusive society for persons with disabilities. By working together across all sectors of society – public, private and civil society – we can finally ensure the inclusion of one billion persons with disabilities in the digital age.

By H.E. Ambassador Luis Gallegos

Ambassador Luis Gallegos is the Permanent Representative of Ecuador to the United Nations Office at Geneva. He was unanimously elected by his peers to serve as Vice President and Rapporteur of the United Nations Human Rights Council for 2013. He is Chairman of the Global UN Partnership for Inclusive Information and Communication Technologies and member of the International Board of Directors of the Special Olympics. From 2002 to 2005, he served as the Chairperson of the United Nations Ad Hoc Committee on the Comprehensive and Integral International Convention on Protection and Promotion of the Rights and Dignity of Persons with Disabilities. The Congress of Ecuador has honored him twice for his work in human rights and for his leadership in the promotion and protection of human rights of persons with disabilities. Ambassador Gallegos has received numerous honorary decorations and awards, among which is the Justice for All Disabilities Rights Award.

PREFACE

More than a billion people live with some form of disability, and 80% of them live in developing countries. Disability is both a cause and a consequence of poverty: poor people are more likely to become disabled, and people with disabilities are among the poorest and most vulnerable groups of the global population.

Regrettably, disability was not included in the Millennium Development Goals (MDGs) or in their operationalizing targets and indicators. As a result, disability has largely been invisible in their implementation, and is rarely included in national policies, programmes, or in monitoring and evaluation efforts related to the MDGs,. This has perpetuated a situation in which environmental barriers are still preventing persons with disabilities from accessing, participating and being fully-included in social, economic and political activities.

The Convention on the Rights of Persons with Disabilities, which entered into force in 2008, constitutes a commitment of the international community to the inclusion of the disability perspective and persons with disabilities in all aspects of development. Furthermore, the UN General Assembly has undertaken to address this issue, and, during its sixty-eighth session, will be discussing the inclusion and integration of the rights, well-being and perspective of persons with disabilities in post-2015 development efforts at the national, regional and international levels.

To contribute to efforts leading to the formulation of a post-2015 development agenda, the Broadband Commission for Digital Development, the Global Initiative for Inclusive Information and Communication Technologies (G3ict), the International Disability Alliance (IDA), the International Telecommunication Union (ITU), Microsoft, the Telecentre.org Foundation and the United Nations Educational, Scientific and Cultural Organization (UNESCO) have jointly produced this *ICT Opportunity for a Disability-Inclusive Development Framework*. This multi-stakeholder partnership adopted a participatory approach and carried out a global consultation to collect over 150 expert inputs from 55 countries across the world.

The ICT Opportunity for a Disability-Inclusive Development Framework contributes to a better understanding of the extent to which information and communication technologies (ICTs) enable and accelerate the social and economic inclusion of persons with disabilities. It highlights that when ICTs are available, affordable and accessible, they significantly improve access to all aspects of society and development. It also lists challenges that are still to be addressed while outlining concrete actions to be undertaken by each group of stakeholders - including national governments, the private sector, and civil and international organizations - and relevant indicators to monitor progress towards the achievement of a disability-inclusive development agenda.
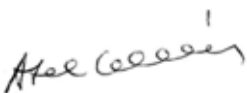
Our vision is of inclusive development and a society in which persons with disabilities, as both agents and beneficiaries of development efforts, can maximize the use of ICTs to fully access healthcare services, benefit at all educational levels, be competitive in the labour market, participate in public life and live independently. We invite you to maximize your use of the evidence in this report and we look forward to working together towards the achievement of this vision.

Dr Hamadoun I. Touré
Secretary-General
ITU

Irina Bokova
Director-General
UNESCO

Axel Leblois
President & Executive Director
G3ict

Yannis Vardakastanis
Chair
International Disability Alliance

David Tennenhouse
Corporate Vice President, Technology Policy
Microsoft

Miguel Raimilla
Executive Director
Telecentre.org Foundation

ACKNOWLEDGEMENTS

CONTENT

INTRODUCTION

1.

Including persons with disabilities in all aspects of society is one of the remaining challenges of the global development agenda. The widespread adoption of the United Nations Convention[i] on the Rights of the Persons with Disabilities (UNCRPD) in 2006 heralded a major step forward in advancing the inclusion of persons with disabilities, turning their socio-economic exclusion into a human rights issue. The UNCRPD places significant obligations on all state officials responsible for equal access to education and employment opportunities. With 155 signatories[ii] and 130 ratifications[iii] to the UNCRPD, the Convention is on its way to becoming a truly universal framework for policy, legislation and regulation championing the rights of persons with disabilities. As this process continues, all stakeholders are focusing their attention on advancing its implementation, putting special emphasis on including specific references, actions and goals aimed at further integrating persons with disabilities into the new international development agenda. This new framework will come into force after 2015, the deadline established for the achievement of the Millennium Development Goals (MDGs).

In this context, the use of Information and Communication Technologies (ICTs) allow the removal of many of the remaining barriers faced by persons with disabilities. With ICTs increasingly integrated into every aspect of the modern world, these ubiquitous technologies have become a positive force of transformation and a crucial element of any personal development/empowerment and institutional framework for inclusive development. ICTs are
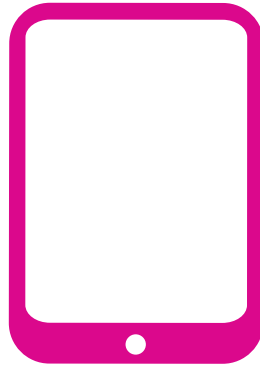
already providing access to key public services, with widespread implications for social progress and economic growth aimed at eradicating poverty and promoting inclusive societies and sustainable development. Accessible ICTs have the potential to provide persons with disabilities unprecedented levels of access to education, skills training and employment, as well as the opportunity to participate in the economic, cultural and social life of their communities[iv]. As of April 2013 and considering that 15 per cent of the world's population, one billion people, has a disability that affects their access to modern communications, there is a dire need to improve the access to ICTs for persons with disabilities (ITU[v] and G3ict, 2012)[vi] .

This report is the result of an extensive expert consultation organized and conducted from 20 May to 17 June 2013. The consultation gathered over 150 expert inputs from relevant organizations (see Annex I) and key individuals representing multiple categories of stakeholders, including governments, academic institutions, organizations of persons with disabilities, civil society organizations, the private sector and regional and international organizations. Furthermore, these inputs stemmed from over 55 countries on the 6 major continents, encompassing diverse areas of development. More information about the consultation is available at: www.itu.int/accessibility

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This report aims to complement previous work on the use of ICT as an enabler of the economic, social and political inclusion of persons with disabilities by further studying the specific contribution that ICTs can bring to achieve a disability-inclusive development agenda, challenges to be overcome and actions to be undertaken. It synthesizes a descriptive data analysis conducted following the collection of survey responses[vii] and interviews of prominent experts in the fields of ICT, disability and development. It also includes comments and suggestions received from the peer-review process carried out from 26 July to 21 August 2013.

Based on the synthesis of the expert views gathered throughout the consultation, Section 2 presents the extent to which ICTs are enablers of social progress and economic growth along with noteworthy best practices in this field. Section 3 analyses the barriers that affect development efforts in the areas of health, education, employment, independent living, government services and participation in political and public life. Section 4 presents a proposed roadmap to move the ICT accessibility agenda forward compiling a set of priority actions to be undertaken by each category of stakeholders. Finally, section 5 lists a set of indicators for measuring progress towards a disability-inclusive economic and social development.

THE ICT OPPORTUNITY FOR PERSONS WITH DISABILITIES

2.

While there are several definitions[viii] of ICT, all acknowledge that ICT is an umbrella term which includes any information and communication device or application and its content. Such a definition encompasses a wide range of access technologies, such as radio, television, satellites, mobile phones, fixed lines, computers, network hardware and software. The importance of ICTs lies in their ability to open up a wide range of services, transform existing services and create greater demand for access to information and knowledge, particularly in underserved and excluded populations, such as persons with disabilities.

The ICT opportunity for persons with disabilities can be better assessed by analysing how each type of access technology contributes to the different dimensions involved in the social and economic inclusion of persons with disabilities. Following this approach, *figure 1* presents a synthesis of the expert views gathered in the ICT consultation[ix].

Overall, web services (and the devices used to access them) constitute the access technology with the greatest impact in promoting the inclusion of persons with disabilities, based on the survey data. This contribution is closely

Figure 1 : **Expert assessment of the contribution of ICTs to improving persons with disabilities' access to social and economic activities**

4.0-5.0: **To a large extent** 3.0-3.9: **To a moderate extent** 2.0-2.9: **To some extent** 1.0-1.9: **To little extent** 0.0-0.9: **Not at all**	Websites	Mobile device & services	Traditional TV set & services	Traditional Radio	Other & emerging technologies	*ICTs most impactful where?*
Healthcare	3.3	3.1	2.9	2.5	2.7	2.9
Primary education	3.0	2.6	2.8	2.3	2.9	2.7
Secondary education	3.4	3.0	2.7	2.3	2.8	2.8
Tertiary, professional, lifelong education	3.7	3.4	2.9	2.4	2.8	3.0
Employment	3.7	3.3	2.5	2.2	2.7	2.8
Independent living	3.4	4.6	2.8	2.4	2.8	3.2
Government services	3.5	3.0	3.0	2.3	2.6	2.8
Participation in political & public life	3.3	3.1	2.7	2.5	2.6	2.8
Overall average	3.4	3.2	2.7	2.3	2.7	

Source: Authors, based on the results of the ICT consultation

followed by mobile phones, which, despite being one of the newer technologies from the ICTs assessed, constitute the second-most valued ICT with regards to its contribution for persons with disabilities. In particular, the use of mobile phones is instrumental in allowing the independent living of persons with disabilities. Television sets and services are the third-ranked ICT in the assessment, specifically for their use as a tool to access government services and information.

The following section presents best practices in the use of each of these technologies to promote the economic and social inclusion of persons with disabilities. These best practices were highlighted by the experts engaged throughout the consultation process.

http://

WEBSITES: critical facilitators for accessing social and economic activities

The advent of the Internet has heralded a new age not only of information sharing in general, but of the proliferation of web-based services that serve disabled and non-disabled communities alike. Through the Internet, users can remotely participate in a range of activities such as tertiary, professional, lifelong education, employment, economic, government services and consumer activities. Opportunities for social participation also include social networking, news access, online interest groups, video, audio and text communication, cloud-based sharing and media interaction. For persons with disabilities, these services and content are made further accessible through both computer-based and web-based accessibility applications such as screen readers, speech recognition, video communication (for sign language communication and video relay interpretation), voice to text services (open and closed captioning, both real-time and embedded) and visual assistance.

In addition, the move to cloud computing and the benefits gained from its processing capability

"The Internet has acted as a platform for collaboration for all types of organisations. It has allowed for all citizens, including people with disabilities, to engage more actively in political and social life. The Internet in itself could be considered an assistive technology, allowing voices to be heard that traditionally could not be."

Anriette Esterhuysen, Executive Director, Association for Progressive Communications (APC)

for performing complex operations will likely result in substantial improvements in the quality and availability of accessible ICTs. However, it should be noted that access to the cloud via the Internet is a prerequisite for these technologies to become available and mainstream.

Websites can provide visual, audio and text output on demand and offer multimedia input opportunities to users, making traditional uni-functional radio and schedule-driven traditional TV broadcasting technologies increasingly irrelevant. For persons with disabilities, multi-functional online environments

help streamline services and move the status quo away from dependence on single-function, cost-prohibitive and often non-accessible devices. In fact, websites and web applications have a greater impact in improving persons with disabilities' access to socio-cultural, educational and economic activities than any other ICT with the exception of mobile phones' impact on independent living. It is important to recognize that accessibility of websites is enabled by the combination of accessibility technologies in the PCs and devices used to access them as well as the accessible design and planning that goes into the development of websites themselves.

FIGURE 2: "ACCESS TO ICTs HAS BEEN VITAL FOR ME TO ACHIEVE FULL PARTICIPATION IN ALL ASPECTS OF LIFE AND SOCIETY. "

Without access to ICTs, which include assistive technologies or specially-developed ICTs, people with disabilities are disenfranchised and are denied equal access to education, culture, and everyday services. This ends up restricting their job opportunities and their possibility for independent living. As a blind person myself, using ICTs is what enabled me to finish my school and university education and complete my academic training, master's degree and internships.

Access to ICTs has been vital for me to achieve full participation in all aspects of life and society, and will continue to be so for the rest of my life. I frequently use the Internet and digital libraries, and can access information about basic things for independent daily living, such as public health information. ICTs have enabled me to access books for pleasure and for education, and I benefit from audio-description to enjoy culture through cinema, museums and documentaries.

ICTs help me use my bank account through ATMs, find my way around cities on my own guided by maps and GPS, accessing crucial information such as public transport routes and timetables. Through ICTs I benefit from e-government services and regularly make electronic payments. ICTs also make it possible for me to communicate on an equal basis with others.

If you cannot access education, you cannot get access to the labour market and you cannot achieve independent living. Although my academic background provided me with the knowledge and skills necessary for exciting career possibilities that would not have been possible without proper access to ICTs either through universal design or through assistive technology. Therefore, ICTs are the key that opens the door to full participation for people with disabilities.

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MOBILE DEVICES AND SERVICES: vital enablers for independent living

More than any other ICTs in use today, mobile devices and services have by far the greatest impact on independent living for persons with disabilities. At the basic level, feature phones provide a means of on-demand communication for the user through both SMS and voice calls. This in itself can enable independent living by ensuring that emergency services, family members, personal aides, assistive and everyday services are just a call or text away.

At a more sophisticated level, smartphones address the unique sensory, physical and cognitive needs of customers with disabilities. A variety of smartphones are rated for hearing aid compatibility. Customers can enjoy open or closed-captioned multimedia content and use face-to-face video chat applications or dedicated video relay services to communicate via sign language. They are also able to access content non-visually through screen reading applications, customize alert settings to use a combination of audible, visual and vibration alerts and take advantage of voice-commands, adjustable font sizes, predictive text and a range of other innovative features, accessories, and third-party applications.

Furthermore, mobile devices are designed to be portable and are easily worn or carried by a user, unlike a laptop computer or television set. For persons with disabilities, having a mobile device increases independent living not only because of the wide range of services that can be accessed, but also because this type of device allows access to those services (including emergency services) immediately at the time of need and from anywhere in the network.

Device and software cost is a huge consideration when it comes to access to ICTs. While complex, function-specific devices may be cost-prohibitive for many persons with disabilities, operator-subsidized smartphones and tablets offer high-quality, portable, easily-customizable systems for a fraction of the cost of a new computer. Increasingly, these devices are appearing on the market with accessibility systems built-in. The prevalence of free applications on the most popular apps markets also enable low- to no-cost software options for assistive and other services.

RADIO AND TV SET AND SERVICES: continuously contributing to social inclusion

Because both websites and mobile devices have experienced a gigantic boom in popularity and prevalence over the past two decades, it is expected that they would be perceived by all sectors of the population as more impactful for social and economic participation than some of the more longstanding ICTs. However, the consultation also highlighted the key

contribution that "older" ICTs, in particular radio and TV services, still enable the social inclusion of persons with disabilities. This is the case of traditional radio, which has long been an indispensable means for persons with sight disabilities to access information. In today's digital age, digital radio broadcast services still have a great potential to maintain the relevance of radio for persons with disabilities.

As far as traditional television sets and broadcasting services are concerned, these technologies continue providing visual, audio and text output through closed captioning. The introduction of digital TV is expanding the range of features and functions that can be enabled for persons with disabilities. One recent example of

this is the integration of sign language interpretation or voice over audio channels in the signals broadcasted, allowing users to opt-in for these services at any time.

With the transition to IP networks these television services are being challenged by Internet-streamed radio and video and also on-demand news coverage, which are quickly becoming ubiquitous. Technologies enabling interactivity and enriched services, for example those based on IPTV standards such as the ones developed within ITU, are enabling innovative television sets and broadcasting services that provide total communication to the public in general and to persons with disabilities, in particular.

BEST PRACTICES

One of the most important developments for utilization of ICTs by persons with disabilities is the definition and implementation of accessibility guidelines to ensure ease of use by persons with disabilities. For instance, the introduction of the Web Content Accessibility Guidelines[x] (WCAG) and the new ISO/IEC standard for WCAG 2.0 – ISO/IEC 40500:2012[xi] are some of the best practices on how to mainstream accessibility principles in the case of web content. Implementation of these guidelines is already reducing and removing significant accessibility barriers precisely in the ICT service that was highlighted during the consultation as the most relevant for persons with disabilities, the Internet. In addition, empirical evidence shows that the adoption of these guidelines improves user experience and accessibility for all persons, regardless of disability. This fact – *that investments in accessibility also introduce benefits for wider groups of the population* – is a common and hugely significant finding.

Furthermore, standardization is a key vehicle to develop global telecommunications and ICT standards that include accessibility features. In this regard, an important goal of standardization-related activities is to ensure that newly developed standards contain the necessary elements that make services and features usable by people with as broad a range of capabilities as possible. As standards describe how different types of equipment interact with each other and define the quality necessary for media to be usable by all devices, these standards should also describe suitable methods of media delivery to persons with disabilities, and are therefore essential for the provision of services accessible for all persons, regardless of ability. In this line of thought, ITU[xii] has developed a set of accessibility guidelines[xiii] to assist standards writers in making equipment, systems and services accessible from day one.

FIGURE 3: EMERGING ICTs, ENABLING PERSONS WITH DISABILITIES AT HOME AND AWAY

In addition to already-existing interactive and accessible services provided by new technologies such as standards-based IPTV, a new development in broadcasting will make access services available via Integrated Broadcast-Broadband (IBB) systems. As with IPTV, IBB content delivery via broadband telecommunication networks allows the representation of access service exactly according to the needs of the persons with disabilities without causing any disturbance to those that do not need these services. In this case, the access services can be displayed (video, images, sound, text, graphics and data) either on the main screen (or the main loudspeakers) or on a second screen (normally a type of tablet PC). By means of the second screen, persons with disabilities are individually served even when watching TV together with their friends or their family.

Excerpt of the contribution from International Telecommunication Union[xiv] ,
 ITU-R Study Group 6 - Broadcasting service

Satellite networks/applications in the mobile-satellite service (MSS) can help to remove barriers and promote full participation/socio-economic inclusion of persons with disabilities. This particular case of a deaf person sailing single-handedly round the globe, a world first, while staying connected throughout his eight-month challenge via the Inmarsat network, brilliantly shows that satellite services can assist persons with disabilities to be really and fully included in our contemporary world, even under the most extreme conditions.

Link to story: www.satnews.com/story.php?number=1596483898

Excerpt of the Contribution from International Telecommunication Union,
ITU-R Study Group 4 - Satellite services

"Access to a computer is one of the greatest equalizers for people with disabilities. The ability to operate a computer and even program an application allows an individual with a disability to find a passion, find a career and become financially independent."

John Schimmel, Co-founder, DIY Ability

Also, the implementation of conformance and interoperability assessment principles in the standardization work could guarantee to customers the compatibility of tested ICT products and their ability to work in different network environments. For this reason, it is highly recommended to add relevant interoperability requirements in standards developments. This is especially true for upcoming technologies that might be part of ICT products for persons with disabilities.

To further contribute to the advancement of ICT accessibility, governments, industry and private sector organizations, research centres as well as organizations representing persons with disabilities are encouraged to contribute to the work of international standards organizations such as the ITU's Standardization sector[xv], the International Electrotechnical Commission (IEC),

the World Wide Web Consortium (W3C), and other appropriate forums. These organizations are integral in defining and proliferating technical standards that contribute to mainstreaming accessible ICTs. It is essential that the determination of how persons with disabilities interact with ICTs involve persons with disabilities in every stage of the process. They must not only be observed as they interact with ICTs, but in order for those observations to be meaningful they must be included and consulted on how to make the assessments and how to interpret the results of those assessments.

To conclude this section *figure 4* highlights technologies that, in the views of the experts consulted, have proven successful and have significantly improved the inclusion of persons with disabilities in all aspects of society.

FIGURE 4: IMPACTFUL TECHNOLOGIES

- Websites: online educational courses, social networking, shopping
- Captioned telephone (relay)
- Telework: online jobs and training, virtual collaboration
- Telemedicine and e-health

Internet

- Sign language interpretation over the web (Video Relay Service, Video Relay Interpreting)
- Chat systems: VoIP, audio, video, text, sign language, text to avatar, real-time text
- Accessibility software: screen reading, voice to text, screen typing
- Captions (closed and open) [eg. Youtube]
- Captioned telephone (relay)
- Accessible e-books and e-documents
- Gamified apps for special education and recreation
- Open source software

Software & apps

- Smartphones and Tablets
- SMS
- Emergency service access – voice, text and sign language
- Captioned telephone (relay)
- Mobile banking services

Mobile devices & services

- Interactive multimedia services and applications
- Access services: text subtitles (open and closed),, audio subtitles, clear audio, descriptive video
- Sign language interpreting

TV sets & services

- Hearing Aids
- Smart homes
- Artificial intelligence – robots, digital human modelling, emotion recognition
- Emergency communication response – satellite,
- "Assistive Bridge to Safety": emergency call subscriber service[xvi] (911, 112, 000, etc.)
- Speech to text, text to speech, speech/text to sign language
- Natural User Interfaces
- Emergency service access – text and sign language relay services

Emerging ICTs

Source: Authors, consultation

UNDER-STANDING THE CHALLENGES

3.

As outlined in Section 2, the use of ICTs is deeply woven into the fabric of society and has become a crucial element of any personal development /empowerment and institutional framework for inclusive social progress and economic growth. However, even with this positive force of transformation, key challenges remain to be addressed if persons with disabilities are to fully benefit from the use of ICTs. This section highlights the main barriers and challenges that persist and must be addressed in expanding the ICT opportunity to all persons with disabilities, as identified by the experts involved in the consultation.

PERVASIVE BARRIERS

Some barriers are pervasive; they affect all areas of development. The first one relates to assistive technologies which are important tools for development efforts. Experts state that **the cost of assistive technologies**, which is comprised of the cost of the technology as well as the cost of assistive technology assessment, training and support services, is still a significant barrier that prevents persons with disabilities from fully accessing healthcare services, benefit at all educational levels, be competitive on the labour market and live independently. Even when they are free, assistive technologies or embedded

Figure 5 : **Impact of countries' income per capita on the availability of Assistive Technologies at major universities**

States Parties Level of UNCRPD ICT Accessibility Compliance by Income per Capita	High Income	Upper- Middle Income	Lower-Middle Income	Low-Income
Assistive Technologies Available to Persons with Disabilities at Major Universities	83%	53%	44%	30%

Source: 2012 UNCRPD ICT Accessibility Progress Report – G3ict

accessibility features in commodity products might still remain unused if there is a lack of experts and rehabilitation professionals trained in the use of these technologies and features.

As far as the market price of assistive technologies is concerned, there is a significant price variation between sophisticated standalone condition-specific solutions and user interfaces to facilitate the use of commodity ICT products such as phones or PCs with no embedded accessibility features. When considering that persons with disabilities are among the most vulnerable groups in the world and that 80% of them live in developing countries, it can be argued that the aforementioned challenges related to the assistive technologies ecosystem are a

tenacious barrier[xvii] to full participation in all aspects of society.

Overall, the main challenges to the availability of assistive technologies are the lack of awareness and the lack of effective training, support and a services ecosystem in-country. Typically, there are three channels supporting assistive technologies: i) the education system, ii) rehabilitation and community centres and iii) employment support services. Many countries with low-income per capita have limited or non-existent assistive technology programs in those three areas. Recent studies show a linear relationship between the availability of assistive technologies at universities and country income per capita (G3ict, 2012).

"The integration and usage of accessible ICT products and services, and the reasonable accommodation of the workplace (including the provision of the necessary assistive technologies) facilitate the participation of persons with disabilities in the labour market."

David Zanoletty, Manager of the ICT and R&D department, Fundacion ONCE

The **lack of access to ICT accessibility technologies** remains a significant barrier which is observable in all areas of development. Even when ICTs are accessible, they are only available in a fraction of the thousands of languages that are spoken and signed all over the world, another barrier to be taken into consideration if this challenge is to be addressed effectively. The UNCRPD 2012 ICT Accessibility Progress Report showed that screen readers are available in the principal language of 63% of the countries having ratified the UNCRPD and they are only available in 19% of minority languages (G3ict, 2012).

Looking into the issue of inaccessibility, empirical evidence shows that this barrier is further perpetuated by the **lack of policies which would foster widespread availability of accessible ICTs and the lack of effective implementation of the aforementioned policies.** Only 36 percent of countries have a definition of accessibility which includes ICT or electronic media in their laws of regulations compliant with the definition of accessibility in UNCRPD Article 9[xviii]. In many cases, policies promoting accessibility may be in place but lack accompanying laws, legislations and regulations to ensure their efficacy.

Lastly, **limited availability and use of ICTs** in general greatly constrains the use of such technologies as a solution to tackling development challenges. This barrier exacerbates the social, educational and economic inequalities for persons with disabilities living in countries where the lack of access to ICTs and capacities to use them is a societal issue.
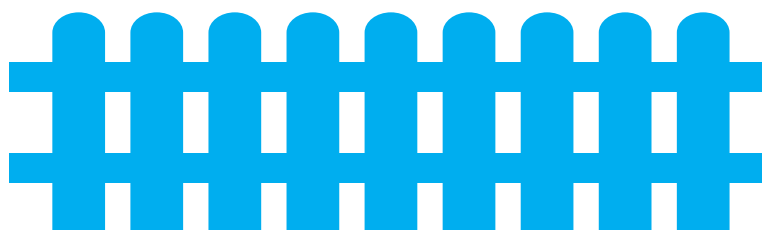
BARRIERS RELATED TO SPECIFIC AREAS OF DEVELOPMENT

Figures 6, 8 and 9 present barriers identified by experts in the context of the consultation in the areas of lifelong learning, employment and independent living[xix].

It should be noted that addressing these barriers requires a collaboration of main stakeholders involved in each sector, as well as the definition of cross-sectorial policies and strategies so that the investments in improving access and accessibility of ICTs in one sector can impact positively on other sectors. Section 4 presents some of the actions highlighted during the consultation that could be undertaken by each group of stakeholders.

Access to information and knowledge is an essential component of inclusive social and economic development. In this regard, one important barrier highlighted during the consultation is the lack of competencies of school teachers to use ICTs. When teachers lack the required competencies (which include not only ICT command/knowledge, but also skills and positive attitudes towards use of ICTs and assistive technology in educational settings) it is very difficult to use these technologies for setting inclusive classrooms open to the participation of persons with disabilities.

ENABLING LIFELONG LEARNING OF PERSONS WITH DISABILITIES

Figure 6 : **Main challenges to be addressed for enabling lifelong learning of persons with disabilities**

PRIMARY EDUCATION

Challenges	Priority
Lack of policy implementation and/or lack of effective implementation mechanisms	#1
Limited access to technology	#2
Lack of policies which foster widespread availability of accessible ICTs	#3

SECONDARY EDUCATION

Challenges	Priority
Cost of assistive technologies	#1
Lack of policies which foster widespread availability of accessible ICTs	#2
Lack of accessibility of ICT devices	#3

TERTIARY, PROFESSIONAL, LIFELONG EDUCATION

Challenges	Priority
Cost of assistive technologies	#1
Persons with disabilities lack awareness of what ICTs can do to facilitate their socio-economic inclusion	#2
Lack of policies which foster widespread availability of accessible ICTs	= #3
Lack of policy implementation and/or lack of effective implementation mechanisms	= #3

Source: Authors, based on the results of the ICT consultation

It is important to note that many persons with disabilities and many other people close to them or those who provide assistance are not aware of how ICTs can help them access education throughout lifetime.

FIGURE 7: GUIDING PRINCIPLES FOR INTRODUCTION OF ICTs IN TEACHING AND LEARNING OF PERSONS WITH DISABILITIES.

Communication is essential to all forms of social interaction and participation and technology helps people to communicate in many effective ways. Indeed, widespread ICT usage and increasing integration of ICTs into in every aspect of life plays an important role in building societies that are more inclusive for persons with disabilities. ICTs can help ensure that persons with disabilities have a greater access to knowledge and independent living. However, there are a few principles that should be taken into consideration while of introducing ICTs.

First, ICTs needs to be accessible to all persons and not just to persons with disabilities. All persons ought to be able to access ICTs that help to facilitate communication in different cultural, educational, and professional situations.

Another principle is that particular forms or approaches to ICT should reflect the goal of fostering greater participation and inclusion. Mobile technologies, for example, enable access for everyone, including persons with disabilities, to access services at the time of need, thus unleashing huge potential for independent living within inclusive societies.

Additionally, where possible, technologies ought to be designed to be as inclusive as possible to all persons, as opposed to further development of certain technologies that would only be used specifically by persons with disabilities. This is important to help facilitate greater inclusion and universal accessibility to mainstream communication technologies. Naturally there will be some circumstances where specialized technologies are necessary, but these will become increasingly rare as technology becomes more universally available.

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A further important principle refers to the level of independence and control persons with disabilities have in their use of ICTs. Indeed, all persons, including those with disabilities have personal preferences for particular technologies and they ought to be able to choose the ICT that best serves them. It is important to take into consideration that the primary purpose of any ICT is that it be controlled to fulfil the functions required by its user.

Finally, it is critical to consider behaviour of the community that surrounds persons with disabilities. Communication that harnesses ICT may require more time than conventional speech processes. For this reason, members of the community should be aware of the importance of waiting for ICT-aided communication; those involved in teaching processes can model this for the larger community. ICT training courses should play a part in standard teacher training programs so that educators become aware of the different uses and users of technologies.

In conclusion, these general principles may guide decisions about the types of technologies that should be used. With that said, important questions remain in terms of content accessibility. There is a clear need for standards to be developed that ensure that ICT is used to make content more accessible in different forms for persons with varying abilities and disabilities.

Figure 8 : **Main challenges to be addressed for enabling access to job opportunities persons with disabilities**

EMPLOYMENT

Challenges	Priority
Cost of assistive technologies	#1
Lack of policies which foster widespread availability of accessible ICTs	#2
Lack of policy implementation and/or lack of effective implementation mechanisms	#3

Source: Authors, based on the results of the ICT consultation

Access to information and knowledge is an essential component of inclusive social and economic development. In this regard, one important barrier highlighted during the consultation is the lack of competencies of school teachers to use ICTs. When teachers lack the required competencies (which include not only ICT command/knowledge, but also skills and positive attitudes towards use of ICT and assistive technology in educational settings) it is very difficult to use these technologies for setting inclusive classrooms open to the participation of persons with disabilities.

As far as the challenges to promote the employment of persons with disabilities are concerned, attitudinal barriers are still highly prevalent in the workplace. Persons with disabilities are perceived as unable to perform highly-skilled jobs. This barrier creates a situation where the only jobs available for persons with disabilities are low-skilled labour. Furthermore, OECD research has shown that persons with disabilities are twice as likely to be unemployed all over the OECD and that, when employed, persons with disabilities work part-time or at reduced hours more often than others. Consequently, the purchasing power of persons with disabilities is comparatively lower than that of other groups, which in turn aggravates the issue of affordability of accessible ICTs.

Figure 9 : **Main challenges to be addressed for enabling independent living for persons with disabilities**

INDEPENDENT LIVING

Challenges	Priority
Cost of assistive technologies	#1
Limited access to technology	#2
Lack of accessibility of ICT devices	#3

Source: Authors, based on the results of the ICT consultation

ENSURING ACCESS TO INFORMATION AND INDEPENDENT LIVING TO PERSONS WITH DISABILITIES

In some countries, information providers such as libraries have become centres of expertise where persons with disabilities can ask and receive professional advice and support regarding how to better access content and information *(see figure 10)*. However, in many countries the option to access these centres and their materials through the use of ICT is not yet fully available for persons with disabilities. In countries where libraries provide special services, most of them still require retention of extensive patron records, such as a user's transaction history. The development of new ICTs, services and content that will benefit library clients with disabilities should take into account the expertise of clients with disabilities, as well as input from librarians, while also keeping in mind libraries' responsibilities to protect the confidentiality of all personally identifiable information entrusted to perform services. In order to derive a maximum benefit from ICT development, professionals such as librarians should be equipped and trained to use ICTs and assistive technologies in order to provide professional assistance.

With regards to independent living, the table below lists the main challenges to be addressed if the ICT opportunity is to be maximized for persons with disabilities.

FIGURE 10: LIBRARIANS AS SERVICE PROVIDERS TO PERSONS WITH DISABILITIES

Librarians as information providers ought to serve as a centre of expertise where persons with disabilities may seek advice on accessing e-content suited to their specific set of abilities.

The provision of this public service would require library professionals to develop awareness of the following points and principles during their training on disability-related issues:

Firstly, they should have a broad knowledge of different digital formats, and their varying accessibility for persons with diverse learning needs. For example, the appearance of text on screen does not necessarily mean that it is accessible. Library professionals ought to be able to access alternative formats of content suited to users' specific needs.

Library professionals should also be familiar with emerging e-reading systems and of what the market is or will be able to provide in terms of e-reading. E-readers vary in their settings and user technology, and librarians should be able to advise on their specificities for readers who prefer not to use printed books. In addition, librarians should have knowledge on specialized libraries (for instance "library of the blind") and other providers that exist to meet the varied demands of persons with disabilities.

Finally, they ought to have a general understanding of the ways different disabilities affect reading abilities so as to help persons with disabilities efficiently. Librarians should receive disability sensitisation and awareness-raising on the rights of persons with disabilities as part of their own learning curriculum and continuing education.

Libraries and library associations with knowledge and experience in facilitating persons with disabilities' access to information can serve as helpful sources of information on how libraries and ICT developers can meet the relevant needs of persons with disabilities. With that said, the privacy of clients with disabilities' user data needs to must be maintained on an equal basis with that of other clients.

With this role as a service provider to persons with disabilities, libraries can also play an important role as data-providers for industry. For example, if sanctioned by a national law register, they may benefit ICT companies by supplying information regarding their customers' registered disabilities. In addition to persons with disabilities and their representative organizations (who would be the best source as to persons with disabilities' specific needs), librarians can also be a supplemental source of input to ICT developers, as they can provide ICT developers valuable information (with user personal data removed) from the perspective of the point of service, use or delivery of some accessible ICTs.

Excerpt of an interview of Koen Krikhaar, Chair of International Federation of Library Associations (IFLA), section Libraries serving Persons with Print Disabilities, the Netherlands.

"ICT should be seen to enable social inclusion of persons with disabilities by fostering independent living.

A key aspect of this is, where possible, differences between the technologies used at home and those used at work should be minimised. Learning how to use assistive technologies can take time and present challenges for persons with disabilities as it is. Therefore, greater homogenization between technologies used in the home and workplace would help to ensure that Persons with Disabilities do not have to employ disproportionate amounts of time and effort learning to use different technologies.

The purpose of building inclusive societies is to foster harmony between all persons, by enabling persons with disabilities to

ADDITIONAL CHALLENGES TO BE CONSIDERED

In addition to the previously mentioned challenges, the consultation highlighted a number of issues that should be addressed to continue expanding the ICT opportunities to persons with disabilities. First, the availability of radio frequency spectrum presents a challenge in terms of the identification of additional suitable frequency ranges to support the wireless communication needs of persons with disabilities. One particular challenge is the difficulty in finding suitable frequencies for hearing aids. Considering the international mobilization to promote the socio-economic inclusion and improve the quality of life of persons with

disabilities, further study regarding suitable frequency ranges and technical characteristics for hearing aids which can satisfactorily operate internationally is necessary

Second, further and on-going research is necessary to better understand the challenges faced by persons with disabilities. Particularly needed is research and building of knowledge in evaluation methods for disability-inclusive projects and policies and cross-disciplinary studies adopting a holistic perspective.

Third, efforts regarding the advancement of the use of ICTs in disability-inclusive efforts often suffer from the isolation of efforts. This a

be integrated in mainstream environments. Adoption of this Framework would help to nurture such an enabling environment by harnessing the power of ICTs, making them more accessible, user-friendly and better equipped to meet the diverse needs of persons with disabilities.

In the same way that the sooner a child learns to use technologies, the easier their learning will be, so too it is the case for children and persons with disabilities. The faster and easier they find it to use ICTs, the easier it will be for them to reap the full rewards of education and social inclusion"

Loubna Cherif Kanouni, President and Founder, Morrocan Association for Children with Cerebral Palsy and Mental Retardation (AMI), Morocco

challenge to be taken into account, especially as it is widely acknowledged that the most successful examples of inclusion of persons with disabilities have witnessed catalytic integration of various stakeholders in different sectors of society coming together to work for improvement and change.

As an example, the city of Copenhagen underwent a drastic accessibility overhaul after valuable collaboration amongst stakeholders. Now, the city has vastly improved accessible infrastructure and services for all persons. Another example is the implementation of video and captioned telephone relay services in the USA and other countries. These allow deaf persons to make phone calls in sign language or via captions. Their implementation was made possible thanks to collaboration amongst stakeholders, which has led to government legislation. These services significantly improved the lives of deaf persons in the workplace, education, community and at home. Adopting a multi-stakeholder approach is a critical factor success for developing solutions leading to a more inclusive society.

These were the main challenges and barriers highlighted during the consultation. Section 4 presents a roadmap of actions proposed by the experts for each stakeholder to address these issues and enable a disability-inclusive development agenda through the use of ICTs.

FIGURE 11: ICT ACCESSIBILITY: TAKING RESPONSIBILITY AND COOPERATING GLOBALLY

ICT accessibility is still perceived as a small market by some private sector actors and not taken into consideration in many governments and civil society organizations. In these cases, accessibility departments are under-resourced and given limited opportunity to improve accessibility of market products and services. Further, the ICT accessibility field generally suffers from a situation of lack of stakeholder coordination, where "the right hand does not know what the left hand is doing". This situation has three main causes:

1) **Lack of awareness and training.** The degree of disconnect in awareness can be seen by the limited accessibility of the products and services available in the market, compared to relative need. Furthermore, accessibility experts, marketing product managers and engineers who do not receive accessibility-related training, do not have a comprehensive perspective of needs of the different groups of persons with disabilities. In some cases there is also the misconception that spending money on making products accessible is not worth the investment as it restrains innovation for products largely targeting the non-disabled market.

2) **Lack of cooperation.** Although convergence requires the industry to work together, too many accessibility actors continue to work in isolation. Software developers and hardware vendors tend to not blend their expertise with each other and use exclusive proprietary solutions developed in-house. Similarly, international standards are still developed without taking into account existing solutions or standards. Both situations are gradually being addressed through introduction of coordination mechanisms, such as the ITU Joint-Coordinating Activity on Accessibility and Human Factors, and examples of how cooperation is the most effective way to take advantage of the synergies in initiatives being undertaking by organizations.

3) **Lack of harmonization.** Accessibility does not easily travel across borders. What is applied in one country will not be suitable to be applied or implemented in another country due to different regulations and needs. This situation can be addressed through policy and regulation harmonization of policies and regulation, precisely to encourage the private sector to address the previously mentioned challenges.

Fortunately, the following existing approaches can be introduced exist to alter business behaviour and achieve better application of article 9 of the UNCRPD:

Awareness raising	Awareness raising activities help the public and the private sector understand that immediate application of the principle of universal design in product and service development will prove cost-efficient by avoiding expensive retrofitting when future regulation force company compliance.
	Strengthening direct involvement of persons with disabilities in product development would improve the understanding the needs are the effectiveness of accessibility tests.
Cooperation	For ensuring accessibility, conformity and interoperability, the industry could take responsibility, cooperate globally and harmonize accessibility practices through standards development.
	International standards need to consistently include accessibility features and be implemented and licensed fairly to all industry regardless of intellectual property restrictions.
	Standards bodies have to increase the participation of persons with disabilities in standards meetings.
Harmonisation	At the national level, the harmonisation of regulation can promote widespread implementation of accessibility standards.
	At the global level, improved cooperation between industries on the sharing of intellectual proprietary of respective proprietary standards should be promoted.

Andrea Saks, International Telecommunications Specialist for the Deaf, Chairman Joint-Coordinating Activity on Accessibility and Human Factors (JCA-ACH), ITU-T and Coordinator at the IGF Dynamic Coalition on Accessibility and Disability.

THE WAY FORWARD

4.

Without a doubt, ICTs have a key role to play in enabling a post-2015 development framework in which persons with disabilities are both beneficiaries and agents of development efforts. However, the international community must address the existing interdependent barriers outlined in the previous section in order to fully leverage the potential of ICTs in the lives of persons with disabilities.

FIGURE 12 : INTERLINKAGES BETWEEN STAKEHOLDERS AND INTERDEPENDENCE OF BARRIERS

"It is recognised that the right of accessibility may be in conflict with authorial and other rights and may conflict with the commercial duty to maximise shareholder value; and it may also be a case that in some jurisdictions corporate social responsibility is subsidiary to maximising shareholder value. It is therefore vital that such issues be resolved through the rational application of economic criteria to determine the appropriate level of economic investment in accessibility by government, commerce and civil society and to determine the degree and nature of transparent regulation and legislation based on the importance of the goods and services and the proportionality of investment to social gain."

Kevin Carey, Chair of the Technology Working Group, World Blind Union
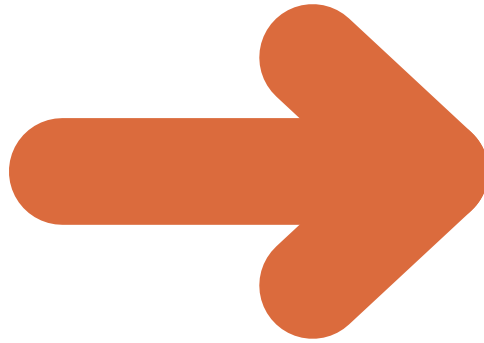
There are also potential risks that should be taken into consideration when generalizing the use of ICTs in development, in order to avoid that these technologies introduce new barriers. The main risk is creating the expectation that accessible ICTs alone can solve all the challenges faced by persons with disabilities. Maximizing the potential benefit of ICTs requires a proper understanding of the full range of challenges and barriers faced by persons with disabilities in each local context, as well as a proper definition and implementation of effective national public policies so that the right ICTs-enabled services can be introduced.

Furthermore, it is important to acknowledge that as there is a wide range of accessibility barriers faced by persons with disabilities and the interventions using ICTs could vary radically. The implementation and use of ICTs will not have the expected results unless these pre-conditions are met. For instance, all stakeholders should be cautious that widespread implementation of accessible ICTs does not put culture at risk, as the observed decline in deaf individuals learning sign language and blind individuals learning Braille is already becoming a trend. It is important to stress that learning sign language and Braille are fundamental parts of intellectual development as they are integral to acquiring language and reading and writing skills. ICTs should not be seen as a substitute for that, but as another layer of communication and inclusion (e.g. remote learning/distance education and language development for deaf children and adults).

The second most relevant risk identified in the consultation is a possible widening of the digital divide. The prevailing costs of assistive technologies may introduce the digital exclusion of

persons with disabilities living in a developing country that may not be able to afford these technologies or, increase existing inequalities and multiple discrimination against persons with disabilities who, in addition to discrimination based on disability, also experience discrimination on the basis of gender or indigenous heritage, for example[xx]. However, it should be noted that there is a wide range of technology available with various degrees of product and service specialization, at a wide range of price points. Digital exclusion is particularly linked to high-end assistive technologies which costs will be relatively much higher than the majority of assistive technologies.

The pace of technological change is also a risk to be considered. Often ICTs with accessible features lag behind new generations of ICTs coming out as often as every six months. Moreover, accessibility features are often only added after initial release of new technology and goods, causing delay and inequalities in persons with disabilities' access to ICTs. Accessibility add-ons or "fixes" are sometimes available only at additional cost and much later than the release of goods- by which time sometimes newer generations may soon be emerging or may have emerged. Thus, an additional cost is the extra time persons with disabilities and/or others spend trying to increase accessibility of purchased ICTs – time which obviously cannot

be recuperated. There is a risk of not identifying, minimizing and reducing such costs, in all countries[xxi]. These and other risks are addressed in this section, which presents a proposal of priority actions to be undertaken by each major group of stakeholders to leverage the ICT opportunity for persons with disabilities.

THE ROLE OF GOVERNMENTS

Governments can play a key role in stimulating the introduction of ICT-enabled solutions adapted to the needs of persons with disabilities, increasing the availability of accessible ICTs and promoting the affordability of assistive technologies in social, educational, economic and other domains. These benefits can be achieved through the promotion of national innovation systems that foster public-private collaboration, as well as development and diffusion of knowledge, accessible products and content as well as assistive technologies.

As the number of State Parties to the UNCRPD continues increasing, work is required at policy level to foster a greater awareness that the UNCRPD is a comprehensive and integral normative instrument which highlights the importance of ICTs and accessibility. Accessibility and use of ICTs by persons with disabilities should be seen as an integral part in enabling them to enjoy all human rights and fundamental freedoms.

Figure 13 : **Priority actions for governments**

GOVERNMENTS

Priority actions	Prioritization
Strengthening research and development to develop new ICT-enabled solutions for persons with disabilities	#1
Incorporating accessibility requirements in procurement policies	= #2
Updating disability legislation to include ICTs in the legal definition of accessibility	= #2

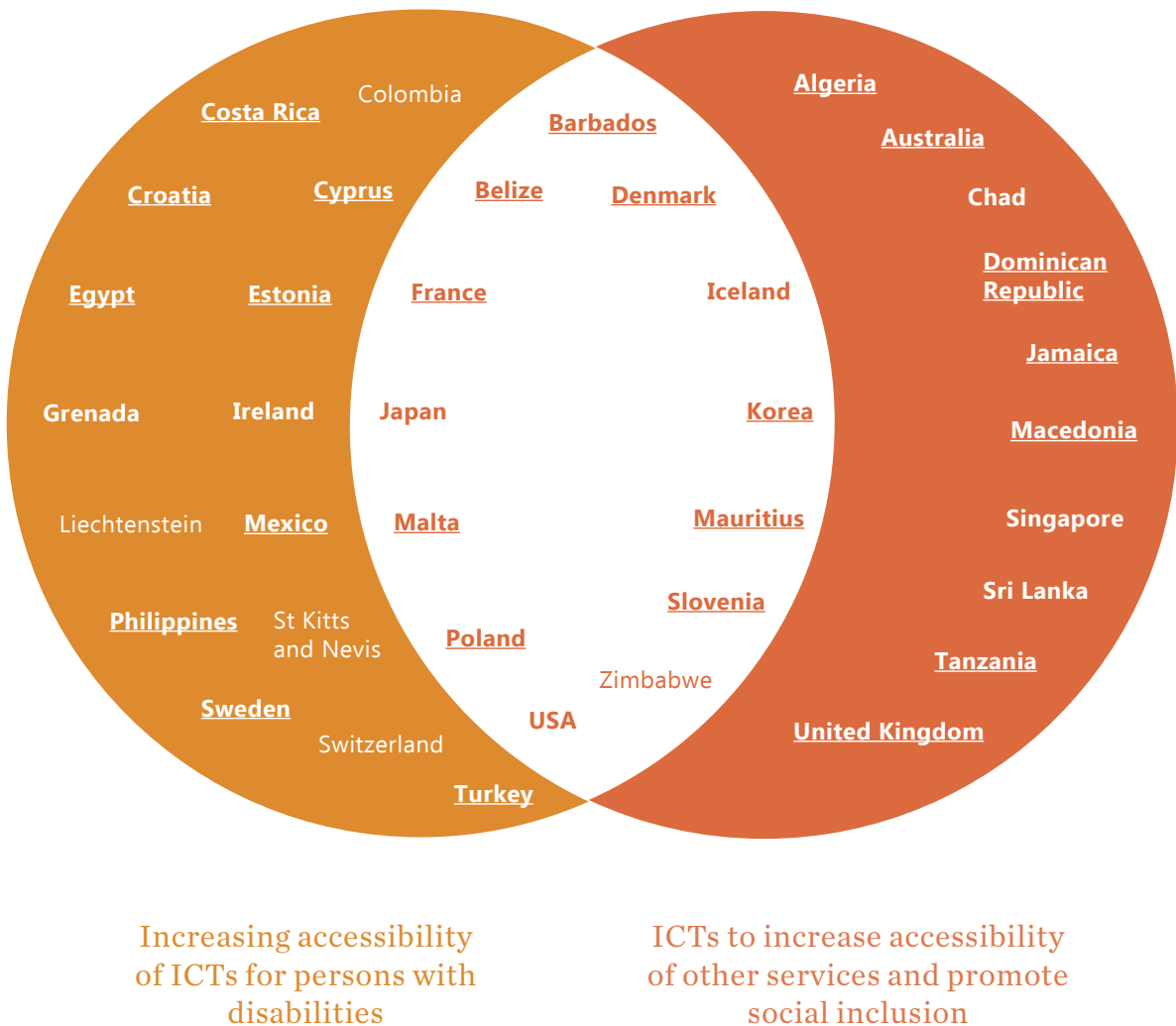Source: Authors, based on the results of the ICT consultation

It is important to raise awareness of policy and decision makers on the need for elaboration of interlinked normative frameworks regarding the use ICTs and assistive technologies by persons with disabilities. UNESCO's Global Report[xxii] (2013) states that there are very few countries with a dedicated ministry for persons with disabilities. Additionally, in many countries all matters relating to disability are handled only under the ministry of social welfare - including education, employment, etc. There is now a positive trend to move away from this situation, however. In most cases, interventions for this important group of the population are undertaken by multiple agencies or ministries of government. Efforts to do a situation analysis and implement article 33 is suggested as a preliminary step governments should take to implement the UNCRPD. *Figure 13* presents the prioritization of actions as defined by the expert views gathered in the consultation.

The notion of accessibility entails the removal of environmental barriers that prevent persons with disabilities from fully participating in economic and social activities. By leveraging their spending power in buying goods and services, national governments can address the market failure whereby demand for accessible products and services does not meet the offer of these products because of their lack of availability, affordability and/or accessibility.

Introducing mandatory procurement policies that incorporate accessibility-related requirements in calls for tenders has the potential to create a critical mass, conceivably turning the market of accessible products into an interesting

Figure 14 : **Countries that included ICT accessibility in their national broadband plans**

Increasing accessibility of ICTs for persons with disabilities

Colombia
Costa Rica
Croatia **Cyprus**
Egypt **Estonia**
Grenada **Ireland**
Liechtenstein **Mexico**
Philippines St Kitts and Nevis
Sweden
Switzerland
Turkey

Barbados
Belize **Denmark**
France
Japan
Malta
Poland
Zimbabwe
USA
Iceland
Korea
Mauritius
Slovenia

ICTs to increase accessibility of other services and promote social inclusion

Algeria
Australia
Chad
Dominican Republic
Jamaica
Macedonia
Singapore
Sri Lanka
Tanzania
United Kingdom

Bold: countries having signed the UNCRPD,
Bold and underlined: countries having signed and ratified the UNCRPD
Source: ITU, 2013 and analysis made by the Secretariat of the Broadband Commission
Note: Uganda features references to accessibility which do not fit into one of the three categories

and profitable one for vendors, developers and manufacturers. Such competitive market would lead to a greater availability of these products, consequently decreasing their final price for persons with disabilities. Additionally, it would raise awareness of vendors, developers and manufacturers of their roles in including persons with disabilities and in upholding the UNCRPD.

This is particularly important when considering that while the overall population that benefits from accessible ICTs is large, each individual group of users with disabilities (e.g. mobility, sensorial or cognitive) may not be large enough to influence market forces. National regulators and policy makers can address this market failure through public interventions and activities such as, but not limited to, the incorporation of accessibility requirements into public procurement policies, the introduction of subsidies and the strengthening of research and development.

While it is widely acknowledged that ICTs enhance the participation and inclusion of persons with disabilities in social, economic, political and cultural life, the reference to ICT is rarely incorporated into disability-related legislation. The Broadband Commission for Digital Development recently conducted a review on the inclusion of key socio-economic policy issues such as youth, gender and ICT accessibility in national broadband policies (March 2013). The results of this review show that only 37% of the policies analysed include relevant references to ICT accessibility. In comparison to the 10 other issues examined in the analysis, ICT accessibility was the third-to-last in national broadband policy inclusions.

Having analysed references to ICT accessibility in national broadband plans, the review found that 14% of these policies referred to "improving the accessibility of ICTs" while 12% referred to "promoting economic and social inclusion through the use of accessible ICTs" and only 7% of the plans included both mentions (see *figure 14*).

Similarly, the 2012 G3ict UNCRPD ICT Accessibility Progress Report found that only 36.4% of countries which have ratified the UNCRPD have a definition of accessibility which includes ICT or electronic media in the country laws or regulations.

This demonstrates a lack of understanding of the opportunity that ICT accessibility represents for enabling the social and economic inclusion of persons with disabilities. In many countries, the definition of disability is complex and evolving. It can also differ significantly from one

country to another. This lack of harmonization in the definition has an impact on interventions, recourses and tools needed or to be allocated. Similarly, the lack of understanding that ICTs and assistive technologies play an important role in helping persons with disabilities to make the transition from education to work (from acquisition of soft skills to technical, and societal skills) is also linked to societal attitudes, existing stereotypes, and even harmful practices. Furthermore, updating disability legislation to include ICTs in the legal definition of accessibility would also allow to mainstream disability in ICT-related policies, plans and programmes. Lastly, opportunities brought by universal service funds are often put forward to finance or subsidize accessibility-related initiatives. Considering this recommendation, effective legislation is a critical prerequisite to bring about effective and sustainable improvements.

By undertaking the aforementioned three priority actions, governments will be creating an enabling environment that provides incentives to other stakeholders to advance the inclusion of persons with disabilities in development efforts.

THE UNITED NATIONS SYSTEM AND OTHER INTERNATIONAL ORGANIZATIONS

The agencies, programmes and bodies of the United Nations system are playing an important role in the definition of the post-2015 international development agenda. While each member of the family contributes by bringing their own perspective and mandate[xxiii] it is important that the collective delivers as one to incorporate the issue of disability into the discussions, identifying the key barriers that need to be addressed and the main opportunities - such as the use of ICTs - that can be leveraged to achieve a post-2015 disability-inclusive development agenda.

In this context, the expert views gathered in the consultation highlight that the most urgent action to be undertaken by the UN system is the implementation of operational activities to meet the disability-inclusive development goals, complemented by the monitoring and evaluation of development efforts at the global, regional and national levels along with the performance review to assess whether development policies, programmes and projects are effective and results-driven (see *figure 15*). In this respect, it is important to ensure that the analysis of results

Figure 15 : **Priority actions for international organizations**

UNITED NATIONS

Priority actions	Prioritization
Carrying out operational activities to meet the disability-inclusive development goals	#1
Monitoring and evaluating development efforts on the global, reg. and national level	#2
Analysing results to determine whether development policies, programmes and projects are effective	= #3
Setting awareness raising and mobilization campaign to create a demand for action	= #3

INTERNATIONAL ORGANIZATIONS

Priority actions	Prioritization
Participating in international standardizations bodies to develop and/or harmonizing accessible ICT standards	#1
Strengthening research and development to develop new ICT-enabled solutions for persons with disabilities	#2
Raising policy makers' awareness of accessibility barriers to be addressed	#3

Source: Authors, based on the results of the ICT consultation

is quantitative and supported by consistent data. The necessary national and global needed data on the use of ICT by persons with disabilities has yet to be collected. It is also important to ensure that analysis of results is designed with the participation of persons with disabilities, in order to make sure that the correct factors are measured. Lastly, the United Nations has to continue implementing awareness-raising activities and mobilization campaigns in order to create a demand for national governmental action.

The United Nations system can also take a more active role in identifying and engaging relevant stakeholders to promote collaboration across the broad range of actors for the development of ICT-enabled solutions for persons with disabilities. Such stakeholders include ICT manufacturers, developers, and vendors, as well as creators and distributers whose content can be made accessible in different languages and through various types of ICTs. This is particularly necessary for the development of technical standards, building capacity, sharing good practices and encouraging new partnership mechanisms. At the community level, it is important that the whole community organizations are trained on how to maximize the potential of ICTs to improve the social, economic and political participation of persons with disabilities in the community life.

International organizations are another key category of stakeholders, as they also play a special role in providing a neutral platform from which develop and harmonize international standards and provide recommendations related to accessible ICTs. Furthermore, international organizations can contribute to the promotion of research and development focused on developing specific ICT-enabled solutions for persons with disabilities. Lastly, international organizations bear the responsibility to raise policy makers' awareness of accessibility barriers to be addressed.

These priority actions were highlighted as essential for removing the barriers that still prevent persons with disabilities from accessing social and economic opportunities. The next section complements this roadmap with a set of indicators for measuring progress towards a disability -inclusive economic and social development.

THE ROLE OF PRIVATE SECTOR

Private sector entities are already playing a key role in designing, manufacturing, developing and putting into the market key ICT-enabled solutions for persons with disabilities. However, this crucial contribution may currently be limited due to the high cost that many of these solutions imply for persons with disabilities, in particular in developing contexts. Addressing this issue and introducing measures to lower the cost of assistive solutions are main priority actions identified in the context of the consultation (see *figure 16*).

Increasing research and development in this area and incorporating universal design principles at the earliest stage of product development would be two approaches to address the cost issue. Although these actions may mean higher development costs, this additional investment presents an important market opportunity, considering that the annual disposable income of persons with disabilities and their relatives represents US$ 9 trillion[xxiv].

Available best practices indicate that there is value in involving persons with disabilities in product development in early development stages, testing, focus groups, as well as at various decision-making levels. Incorporating personal experiences and insights of each group of

Figure 16 : Priority actions for the private sector

PRIVATE SECTOR

Priority actions	Prioritization
Lowering the cost of assistive technologies	#1
Training information technology professionals on ICT accessibility	#2
Strengthening research and development to develop new ICT-enabled solutions for persons with disabilities	#3

Source: Authors, based on the results of the ICT consultation

persons with disabilities allows better understanding and meeting their needs and contributes to making products and services accessible by design.

Another priority action is to address the shortage of information technology professionals with ICT accessibility skills. This shortage can be addressed by organising internal training programmes on ICT accessibility, adding this issue to university curricula, as well as to programmes of conferences carried out by professional societies and in periodicals published by each segment of the industry.

The private sector can help raising awareness of policy-makers and civil society organizations on existing accessible devices and services. This can be done through corporate and product-related communication activities and through the designation of a corporate liaison to coordinate these activities.

Finally, the private sector has a vital role to play regarding the employment of persons with disabilities. By removing attitudinal barriers and making the workplace accessible, employers can greatly contribute to a society where persons with disabilities can participate in work life, and have increased independence.

THE ROLE OF CIVIL SOCIETY AND ORGANIZATIONS OF PERSONS WITH DISABILITIES

Organizations of persons with disabilities and other civil society organizations are essential in promoting coordinated action among persons with disabilities and other citizens. They positively contribute to development efforts as they allow mobilizing social capital and organizing collective action, thus enhancing interactions between communities and other stakeholders.

Civil society organizations can play a key role in promoting the use of ICTs as an enabler of a disability-inclusive development framework. In particular, they have a tremendous priority identified in the consultation (see *figure 17*). Additionally, these organizations can contribute to the development of relevant national policies through their involvement in national consultations led by policy makers. Civil society organizations also need to become more active in the work conducted by international standards organizations that are working on these technologies, including consortium-based and voluntary standards, as well as formal standards developed by organizations such as the ITU, the International Standards Organization (ISO) and the International Electrotechnical

Commission (IEC), which are open to the participation of civil society. New multi-sectorial and multi-stakeholder partnership mechanisms and initiatives are also encouraged between international organizations such as UNESCO or ITU and civil society as it helps to ensure long-term sustainability of initiatives for inclusion of persons with disabilities, maximise participation, and oversee the monitoring and implementation of policies and practices.

Civil society organizations also have the ability to bring about social progress and economic growth by raising the awareness of persons with disabilities and their parents of what ICTs can do to facilitate their economic and social inclusion. In addition, these organizations can undertake extensive training[xxv] of persons with disabilities on the use of these ICT tools. Such training could cover the whole range of potential uses, such as adopting ICTs for basic communications, accessing key public services or using ICTs in a professional context. Lastly, one priority action to be considered by civil society organizations is advocacy for the mainstreaming of the use of the universal design principle in all development efforts. This would contribute to ensuring that the international development framework is disability-inclusive.

Figure 17 : Priority actions for the civil society and organizations of persons with disabilities

CIVIL SOCIETY

Priority actions	Prioritization
Raising policy makers' awareness of accessibility barriers to be addressed	#1
Mainstreaming the use of universal design principle	#2
Getting organizations of persons with disabilities involved in policy making	#3

ORGANIZATIONS OF PERSONS WITH DISABILITIES

Priority actions	Prioritization
Training persons with disabilities to use accessible ICTs	#1
Raising persons with disabilities' awareness of what ICT can do to facilitate their economic and social inclusion	#2
Getting organizations of persons with disabilities involved in policy making	#3

Source: Authors, based on the results of the ICT consultation

A PROPOSAL OF INDICATORS FOR MEASURING PROGRESS

5.

This section presents a proposal of measurable indicators has proven to be a valid strategy in advancing the implementation of the global development agenda. The consultation has gathered the following set of indicators to support the definition of an action oriented agenda aimed at fulfilling the contribution of ICTs to achieve a disability-inclusive agenda. These preliminary indicators can be further refined by involving relevant stakeholders in each domain and by defining time-bounded goals, to be integrated with the Sustainable Development Goals to be agreed as part of the post-2015 discussions.

GENERAL INDICATORS – Access, accessibility and awareness

- Access to ICTs based on impairment type per technology (telephone, Internet, broadband)

- Availability of accessible ICT products and services across markets

- Affordability of ICTs for persons with disabilities

- Proportion of ICT products and services with built-in accessibility functions

- Awareness rate of persons with disabilities on the use of ICTs to improve their economic and social inclusion

- Disability legislation updated with the inclusion of ICTs in the definition of accessibility

- GDP proportion spent on research and development relating to ICT-enabled solutions for persons with disabilities

- Total of patents filed/awarded to ICT-enabled solutions for persons with disabilities

INDICATORS BY SECTOR

Healthcare

- Proportion of persons with disabilities accessing healthcare services through ICTs

Primary, secondary and tertiary education

- Digital literacy rate among schoolteachers and students

- Availability of accessible ICTs in primary and secondary schools and in

- Special teacher training programmes and courses on inclusive ICTs

Professional and lifelong education

- Digital literacy rate among persons with disabilities

INDICATORS BY SECTOR

Employment

- Digital literacy of employees with disabilities
- Persons with disabilities employment rate
- Persons with disabilities employed in the public sector
- Persons with disabilities employed in the Healthcare sector
- Persons with disabilities employed in the Education sector
- Persons with disabilities employed in national governments on e-government services
- Persons with disabilities employed in national governments on employment-related policy issues
- Persons with disabilities employed in national governments on independent living-related policy issues
- Persons with disabilities using ICTs in the workplace

Independent living

- Proportion of persons with disabilities using ICTs for living independently

Government services

- Proportion of persons with disabilities accessing e-government services
- Proportion of persons with disabilities accessing accessible public information

Participation in political and public life

- Proportion of persons with disabilities using ICTs to participate in social and political activities

"The divide that separates persons with disabilities from other persons, in having equal and easy access to ICT, must be bridged. ITU's standards are designed from inception to help achieve that goal - universal access to communications for everyone, with a focus on availability, and affordability. Globally standardized solutions increase market size, usability and interoperability, and reduce complexity and cost."

Malcolm Johnson, Elected Director of the ITU Telecommunication Standardization Bureau

These are the experiences, challenges and recommendations gathered as a contribution to the HLMDD. By further presenting the ICT opportunity for persons with disabilities, identifying the remaining challenges and barriers to be overcome and proposing a roadmap of actions, this report invites all stakeholders to acknowledge the role of ICTs as critical enablers of a disability-inclusive international development agenda.

ENDNOTES

I.   UN (2006) *"Convention on the Rights of Persons with Disabilities"*. Available at: www. un.org/disabilities/convention/conventionfull.shtml

II.   As of April 2013.

III.   As of April 2013.

IV.   ITU, *"Connect a School, Connect a Community toolkit",* Module 4: Using ICTs to promote education and training for persons with disabilities. The ITU-G3ict *"e-Accessibility Policy Toolkit for Persons with Disabilities"* is an online toolkit designed to assist policy-makers to implement the ICT accessibility dispositions of the UN Convention on the Rights of Persons with Disabilities.

V.   ITU's Telecommunication Development Sector (ITU-D) fosters international cooperation and solidarity in the delivery of technical assistance and in the creation, development and improvement of telecommunication/ICT equipment and networks in developing countries. ITU-D implements projects under the United Nations development system or other funding arrangements, so as to facilitate and enhance telecommunication/ICT development by offering, organizing and coordinating technical cooperation and assistance activities.

VI.   ITU and G3ict (2012) *"Making Mobile Phones and Services Accessible for Persons with Disabilities"* August 2012. See also: ITU and G3ict (2011) *"Making Television Accessible",* November 2011. Available at: www.itu.int/ITU-D/sis/Persons with disabilities/ Documents/ITU-G3ict%20Making_TV_Accessible_Report_November_2011.pdf

VII.   More information on the survey questions at www.itu.int/accessibility.

VIII.   The ITU Correspondence Group on the Elaboration of a Working Definition of the Term "ICT" is currently working on this matter. Its final report will be presented to ITU Council in May 2014 and to ITU Plenipotentiary Conference in October 2014. Additional information is available on the Correspondence Group website (www.itu.int/ITU-D/study_groups/SGP_2010-2014/groups/definition/).

IX. The table below can be read in 2 different ways. First, each line shows the extent to which each technology (websites, mobile device and services, TV set and services, radio, other and emerging technologies) improves persons with disabilities' access to one specific social and/or economic activity. When looking at the columns, they highlight the impact of one specific technology across social and/or economic activities (Healthcare, Primary education, Secondary education, Tertiary, professional, lifelong education, Independent living, Governments services and Participation in political and public life).

X. These guidelines aim to provide a single shared standard for web content accessibility. More information can be found at the following link (www.w3.org/WAI/intro/wcag.php).

XI. More information available at: www.iso.org/iso/iso_catalogue/catalogue_tc/catalogue_detail.htm?csnumber=58625

XII. ITU's Telecommunication Standardization Sector (ITU-T) assemble experts from around the world in develop international standards known as ITU-T Recommendations which act as defining elements in the global infrastructure of ICT. From its inception in 1865, ITU-T has driven a contribution-led, consensus-based approach to standards development in which all countries and companies, no matter how large or small, are afforded equal rights to influence the development of ITU-T Recommendations. From its beginnings as a body standardizing international telegraph exchange, through its formative role in telecommunications, and in today's converged ICT ecosystem, ITU-T has provided the world's best facilities to the global standardization community and remains the world's only truly global ICT standards body.

XIII. ITU-T Technical Paper FSTP-TACL (2006), *"Telecommunications Accessibility Checklist"*, www.itu.int/pub/T-TUT-FSTP-2006-TACL

ENDNOTES

XIV. The ITU Radiocommunication Sector (ITU-R) plays a vital role in the global management of the radio-frequency spectrum and satellite orbits - limited natural resources which are increasingly in demand from a large and growing number of services such as fixed, mobile, broadcasting, amateur, space research, emergency telecommunications, meteorology, global positioning systems, environmental monitoring and communication services - that ensure safety of life on land, at sea and in the skies. Its mission is to ensure the rational, equitable, efficient and economical use of the radio-frequency spectrum by all radiocommunication services, including those using satellite orbits, and to carry out studies and approve Recommendations on radiocommunication matters.

XV. The Study Groups of ITU's Telecommunication Standardization Sector (ITU-T) assemble experts from around the world to develop international standards known as ITU-T Recommendations which act as defining elements in the global infrastructure of ICT. ITU-T drives a contribution-led, consensus-based approach to standards development in which all countries and companies, no matter how large or small, are afforded equal rights to influence the development of ITU-T Recommendations.

XVI. This service can be set up to automatically "bridge in" a third party (such as a family member, agency, or friend) who can assist the call taker with the emergency call placed by a subscriber, or alert a third party when an emergency call is placed by a subscriber.

XVII. Assistive technology support is extremely weak in most developing nations as well as in nations with a low Human Development Index ranking.

XVIII. G3ict (2012) *"CRPD 2012 ICT Accessibility Progress Report"*. Available at: www.g3ict.org/resource_center/publications_and_reports/p/productCategory_whitepapers/subCat_0/id_244

XIX. All the results gathered relating to the prioritization of main challenges to be addressed to maximize the ICT opportunity for persons with disabilities in each area of development are made available at www.itu.int/accessibility

XX.   These should be addressed in consultation with the relevant groups and by the collection of disaggregated data.

XXI.   One way to avoid this problem would be to spread the acceptance and utilize standardization documents such as *"ITU-T Recommendation F.790:Telecommunications accessibility guidelines for older persons and persons with disabilities"* (web link: www.itu.int/rec/T-REC-F.790-200701-I/en) and *"ISO/IEC Guide 71: guideline for standards developers to address the needs of older persons and persons with disabilities"* (web link: www.iso.org/iso/catalogue_detail?csnumber=33987).

XXII.   UNESCO (2013) *"UNESCO Global Report. Opening New Avenue for Empowerment. ICT to Access Information and Knowledge for Persons with Disabilities".* Paris. www.unesdoc.unesco.org/images/0021/002197/219767e.pdf

XXIII.   Fifth Quadrant Analytics (2012) *"Emerging Giant – Big is not Enough, The Global Economics of Disability",* March 1, 2012. Available at: www.thinkbeyondthelabel.com/Blog/file.axd?file=2012%2F5%2FThe+Global+Economics+of+Disability+2012.pdf

XXIV.   An expert stated that a prerequisite to these training activities was a mapping (software, hardware and course) that would assess the relevance of existing and currently used ATs as well as the required training programs. It was also suggested that UN system could gather these tools in a cloud computing platform. This will help telecenters and other organizations support the training of persons with disabilities in an inclusive developmental approach.

XXV.   Advancing in the implementation of Resolution 175 (Guadalajara, 2010), and in light of Article 12 of the International Telecommunications Regulations, adopted at the 2012 World Conference on International Telecommunications, ITU has undertaken to enable the full participation of persons with disabilities in the activities of the Union, and to promote the empowerment of persons with disabilities through the use of ICTs worldwide.

ANNEX I – LIST OF ORGANIZATIONS INVOLVED

This report has gathered the experiences, views, recommendations and proposals from the following organizations, which took part in the ICT consultation in support of the HLMDD (organizations listed alphabetically by name).

A

ABC, Mexico

Ability Net, UK

Accessible Media Inc. (AMI), Canada

ADD International, Sudan

Agency for Disabled People, Bulgaria

Alcatel-Lucent, France

Asociación Nicaragüense para la Integración Comunitaria (ASNIC), Nicaragua

Aspire, UK

Assistive Technology Industry Association, USA

Association for Progressive Communications (APC)

Austrian association supporting the blind and visually impaired, Austria

B

BAPU Trust for research on mind and discourse, India

Barbados, (Telecommunications Unit of the Government of)

Bauman Moscow State Technical University, Russia

Best Buddies, Mexico

BlackBerry, Canada

Bogo City (Government of), Philippines

Bolivia (Viceministerio de Telecomunicaciones)

Bulgarian Paralympic Association, Bulgaria

C

Captioning International

Captioning Working Group, New Zealand

Cedat85, Italy

Center for Accessible Information, USA

Center for Ambient Intelligence and Accessibility of Catalonia (CAIAC), Spain

Center for the Deaf and Hard of Hearing – BMSTU, USA

Centre for Development of Advanced Computing (C-DAC), India

Centre for Internet and Society (CIS), India

Centro d'Ateneo per la disabilita' e l'integrazione, Research & Service Center about Disability, Universita di Padova, Italy

Centro de Vida Independente (CVI), Brazil

China Handicap Fund, China

Code Factory, Spain

Communication, Access, Literacy, Learning (CALL), Scotland

Conseil Français des Personnes Handicapés pour les questions Européennes (CFHE), France

Coordinadora Nacional de Organizaciones de Limitados Visuales (CONALIVI), Colombia

Côte d'Ivoire (E-Handicap Project of the Government of)

Creative Centre Trust, Cook Islands

D

Dipartimento di salute della donna e del bambino, Università di Padova, Italy

Diplomatt, Kenya

Disability Center and Hospital of Padua's University, Italy

Diverse Disability Media, USA

DIY Ability, USA

E

EcoSynergy Group, New Zealand

Egypt (government of)

Enabling Unit, India

Estudiantes o Trabajadores Ciegos y Debiles Visuales del Estado de Veracruz, A.C. (ETCDVEV), Mexico

European Agency for Development in Special Needs Education

European Federation of Hard of Hearing (EFHOH)

European Hearing Instrument Manufacturers Association (EHIMA)

F

Federal Communications Commission (FCC), USA

Fédération Handicap International / Programme du Burundi

Federation of Tunisian Organizations of Persons with Disabilities (FATH), Tunisia

Fundación ONCE, Spain

Future Hope, Ghana

G

Geneva-Kurisaki Market Intelligence Lab, Switzerland

Global Wire Associates (GWA), USA

GSA InfoComm, Australia

I

IBM, UK

Informatici Senza Frontiere, (Computer Scientists with no Borders), Italy

Institut Méditerranée du Littoral, France

Institut supérieur des études technologiques en communications de Tunis (ISET'Com), Tunisia

Institute for Advanced Studies in Communications (Iecom), Brazil

Institute on Disabilities, Temple University, USA

Instituto Superiore della Comunicazioni e delle Techologie, Italy

International Center for Disability Resources on the Internet (ICDRI), USA

International Federation of Hard of Hearing (IFHOH)

Internet Society, Kenya

Internet Society, Pacific Region

ITU Development Bureau

ITU Radiocommunication Bureau

ITU Standardization Bureau

K

Kenya College of Accountancy (KCA), Kenya

Kenyatta University, Kenya

L

Lucy Tech, Switzerland

N

National Agricultural Research Organisation Uganda (NARO), Uganda

National Confederation of Disabled People (ESAEA), Greece

National Council for the Blind of Ireland (NCBI), Ireland

National Institute of Speech and Hearing, Egypt

National Institute of Speech & Hearing (NISH), India

National University of Colombia, Master in Handicap and Social Inclusion, Colombia

Neil Squire Society, Canada

Norway Post and Telecommunications Authority, Norway

O

Information Technology Authority, Sultanate Of Oman

P

Paris City Council, France

Polytechnic Institute of Ecuador, Ecuador

R

Raising The Floor International

Real Time Reporting, Italy

S

Samarthyam National Center for Accessible Environments, India

SAMENA Telecommunications Council, UAE

Saudi Arabia (Universal Access for Individuals with Disabilities Program of the Government of)

Special Educational Solutions - Special Educational Systems, Cyprus

Support Center for Inclusive Higher Education (SIHO), Belgium

T

Telecentre.org Foundation, Arab Region

Telefonica, Spain

Telekom Austria Group, Austria

Texas (Information Department of the government of), USA

The Trust for the Americas, Organization of American States

Tunis University, Tunisia

Tunisian Association of E-Accessibility, Tunisia

U

Uganda (Meteorological Department of the government of)

Ukraine (Inclusive Libraries Project)

UNESCO Office in Beijing, China

UNESCO Office in Beirut, Lebanon

UNESCO Office in New York, USA

UNESCO Communication and Information Sector

UNESCO Education Sector

Unión Latino-Americana de Ciegos

United Nations Children's Fund (UNICEF), China

University de Trás-os-Montes e Alto Douro (UTAD), Portugal

University of Macerata, Master in Accessibility to Media, Arts and Culture, Italy

University of Maribor, Slovenia

US Department of Education - Office of Special Education and Rehabilitative Services, USA

US Department of State, USA

V

Vision Sense, UK

W

WhatSock, USA

WK Media, Kenya

World Blind Union

World Federation of the Deaf, Expert Group on Accessibility and Technology

World Intellectual Property Organization

ABOUT

The **Broadband Commission for Digital Development** is an initiative set up by ITU and UNESCO in response to UN Secretary-General Ban Ki-Moon's call to step up efforts to meet the Millennium Development Goals. Launched in May 2010, the Commission comprises government leaders from around the world and the highest-level representatives and leaders from relevant industries and international agencies and organizations concerned with development, providing a fresh approach to UN and business engagement. To date, the Commission has published two High-Level policy reports, as well as a number of best practices and case studies. More information about the Commission is available at www.broadbandcommission.org

The **Global Initiative for Inclusive Information and Communication Technologies (G3ict)** is an advocacy initiative of the UN Global Alliance for ICT and Development, launched in December 2006 in cooperation with the Secretariat for the Convention on the Rights of Persons with Disabilities. Its mission is to facilitate and support the implementation of the dispositions of the Convention on the accessibility of Information Communication Technologies and assistive technologies. G3ict relies on an international network of ICT accessibility experts to develop and promote good practices, technical resources and benchmarks for ICT accessibility advocates around the world. It is incorporated as a non-profit organization in

the State of Georgia, USA, and headquartered in Atlanta. More information about the G3ict is available at www.g3ict.org

The **International Disability Alliance (IDA)** is a network of global and regional organizations representing persons with disabilities. The aim of IDA is to promote the effective and full implementation of the UN Convention on the Rights of Persons with Disabilities worldwide, as well as compliance with the CRPD within the UN system, through the active and coordinated involvement of representative organizations of persons with disabilities at the national, regional and international levels. IDA with its unique composition as a network of the foremost international disability rights organizations is the most authoritative representative voice of persons with disabilities and acknowledged as such by the United Nations system both in New York and Geneva. More information about IDA is available at www.internationaldisabilityalliance.org/en

The **International Telecommunication Union (ITU)** is the leading United Nations specialized agency for telecommunications/ICT. Its membership, comprised of 193 governments, over 700 private companies and more than 50 academic institutions, has called for ITU to take the lead in promoting ICT accessibility, as well as to promote the use of ICTs as a key enabler to achieve the socio-economic

inclusion of persons with disabilities in all aspects of life. ITU is based in Geneva, Switzerland, with 12 field offices around the world. More information about ITU's activities in this domain is available at www.itu.int/accessibility

Microsoft is a worldwide leader in software, services and solutions that help people and businesses realize their full potential. The mission and values at Microsoft are to help people and businesses throughout the world to realize their full potential. The mission statement is a promise to the customers. Microsoft delivers on that promise by striving to create technology that is accessible to everyone—of all ages and abilities. Microsoft is one of the industry leader in accessibility innovation and in building products that are safer and easier to use. Microsoft takes a strategic approach to accessibility by focusing on integrating accessibility into planning, design, research, development, testing, and documentation. More information is available at www.microsoft.com/enable/microsoft/mission.aspx

Telecentre.org Foundation's mission is to increase the social and economic impact of ICTs around the world by leading the global telecentre movement towards innovation, relevance and sustainability; serving as a hub for knowledge sharing and collaboration among telecentres and ICT4D stakeholders while creating opportunities for individuals and communities through relevant training, content, linkages

and services. The Foundation promotes the establishment and sustainability of grassroots level telecentres which are public places of access to the Internet and other digital technologies. These telecentres enable personal and social development through the provision of crucial services, skills and opportunities to people living in remote and rural locations around the world. More information on the Telecentre.org Foundation is available at: www.telecentre.org

UNESCO is the only United Nations specialized agency for education, science, culture, communication and information since its creation in 1945. UNESCO works towards creating the conditions for peace and dialogue among civilizations, cultures and peoples, based upon respect for commonly shared human values. The access to accessible information using ICT for marginalized social groups, including persons with disabilities, is fully incorporated in the UNESCO's strategic documents. UNESCO believes that the promotion and recognition of universal human rights and providing access to information and knowledge, particularly through innovative use of media and ICTs, are conducive to ensure that every citizen, including persons with disabilities, could better contribute to social and economic development. More information about UNESCO's activities in this domain is available at www.unesco.org/new/en/communication-and-information/access-to-knowledge/access-for-people-with-disabilities

www.itu.int/accessibility