Enabling Environments

WORLD BANK INAUGURAL
DISABILITY AND DEVELOPMENT
CORE COURSE

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Universal Access in Information & Communication Technologies (ICTs)

Axel Leblois, G3ict

Topics

1. Universal Access of ICTs: What is at stake?
2. The Raku-Raku Story
3. Universal Access of ICTs in the Convention on the Rights of Persons with Disabilities
4. Policy and programs implementation

1 - UNIVERSAL ACCESS OF ICTS: WHAT IS AT STAKE?

Data Points

- **Pervasive and fast expanding ICT usage worldwide:**
  - **1.3 billion telephone land lines**
  - **1.4 billion TV sets**
  - **1.4 billion personal computers**
  - **2.3 billion Internet users**
  - **6.4 billion cell phones, over 3 billion text messaging users**
- **Full participation to society requires that ICTs be universally accessible**

User Demographics are Compelling Example: 2005 US Census

- Persons with disabilities in the United States:
  - **54.4 million persons, 17% of the US population**
  - **35 million or 12% with a severe disability**
  - **69% of those age 21 to 64 with a severe disability are unemployed**

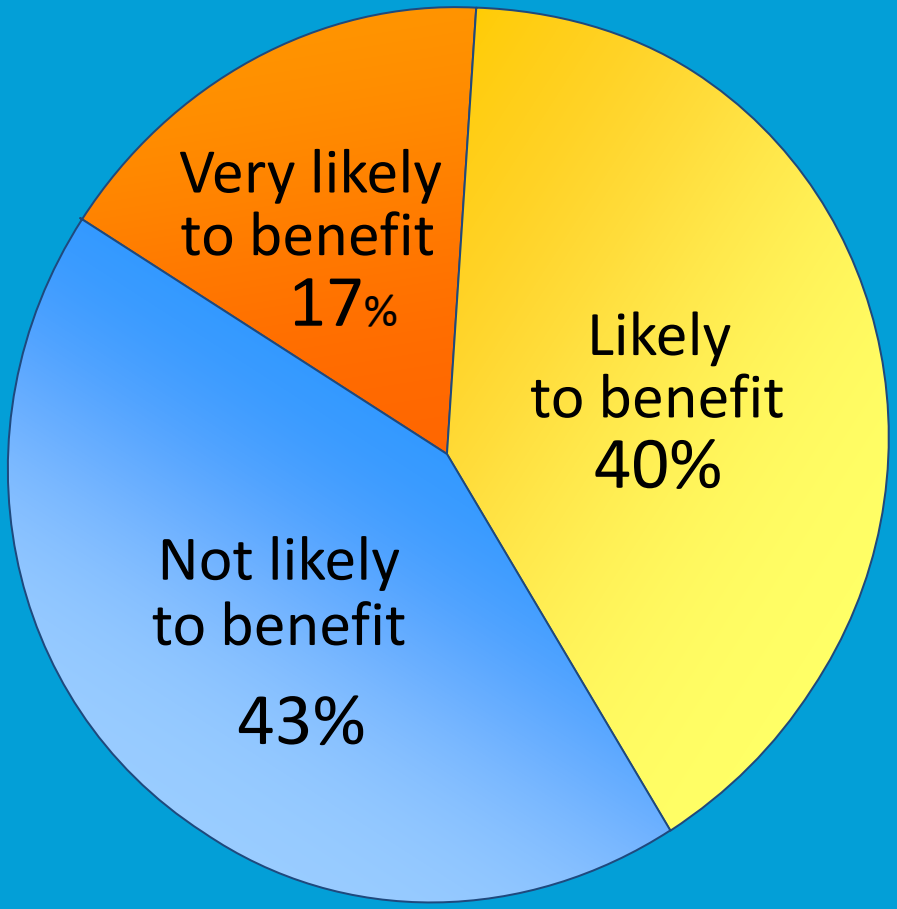
U.S. Census Bureau News
U.S. Department of Commerce · Washington, D.C. 20233

Quiz!

What is the percentage of the total U.S. adult population of Microsoft Windows customers likely to benefit from Accessibility Features?

(As measured by Microsoft Research)

57% of Microsoft Windows Customers Likely to Benefit from its Accessibility Features



Study commissioned by Microsoft, Conducted by Forrester Research in 2003

- 57% of adult computer users (age 18-64 in the US) are likely or very likely to benefit from accessibility features
- 1 in 4 users experiences a visual difficulty.
- 1 in 4 experience pain in wrists or hands.
- 1 in 5 has a hearing difficulty.

Discussion: and Solutions

- Web sites
- E-books
- Television
- Digital contents
- Computer interfaces
- Mobile and fixed phones
- ATMs and electronic kiosks
- e-government electronic services
- Public displays and messaging
- Digital interfaces for consumer products

Accessibility Principles - Summary

- **Universal Accessibility means that all users must be able to do three things for every control, instruction or output:**
  1. **Perceive it:** being aware of its existence and being able to access its information
  2. **Understand it**: knowing what it means and how to use it
  3. **Operate it:** being able to reach it and physically interact with it in the required way, which might mean pressing, moving, twisting or pulling
- **Independent of their visual, auditory, physical, dexterity, and cognitive abilities**

2 - THE RAKU RAKU STORY

The Raku Raku Story 2001-2009

- **NTT DoCoMo Market Situation in 2001**
  - Overall penetration of cell phones in Japan: 82.6%
  - NTT DoCoMo market share: 51%
  - Opportunity: rate of utilization decreases significantly with age (90+% aged 20 to 50; less than 30% above 70)
- **Decision to tackle issue across organization, products and services**
  - Adoption of Universal Design principles
  - Cell phone handsets, stores & services

DOCOMO's Hearty Plaza

docomo

We exchanged opinions with people with disabilities and universal design authorities from the stage of design and construction and developed enriched service menus and outlet design planning.

Interior, DOCOMO Shop Marunouchi in Yuraku-Cho, Chiyoda-Ku, Tokyo

Full services menu

- Sign language staff
- Concierge service
- Consultation
- English tool, brail tool

Shop design

- Resolved levels on floors/corridor
- Set up indoor directions
- Set up omni-counter
- Set up omni-toilet
- Directions by artificial voice guide

「"DOCOMO Hearty Plaza" won a 2004 Good Design Award

Source: NTT DoCoMo presentation at
ITU – UNESCAP meeting in Bangkok, August 26, 2009

Example of “Raku Raku” Accessible and Assistive Features and Services

- A large screen with large characters
- Dedicated buttons to call certain pre-recorded numbers automatically
- “Read aloud” menus and text
- Voice input text messages and email
- Access to a network of talking books (Bibulio-net, 12,395 titles as of March 2009) with an integrated DAISY player
- An optional bone conductor receiver to transmit sound waves directly from bone to nerve

Initiative Launched in 2002

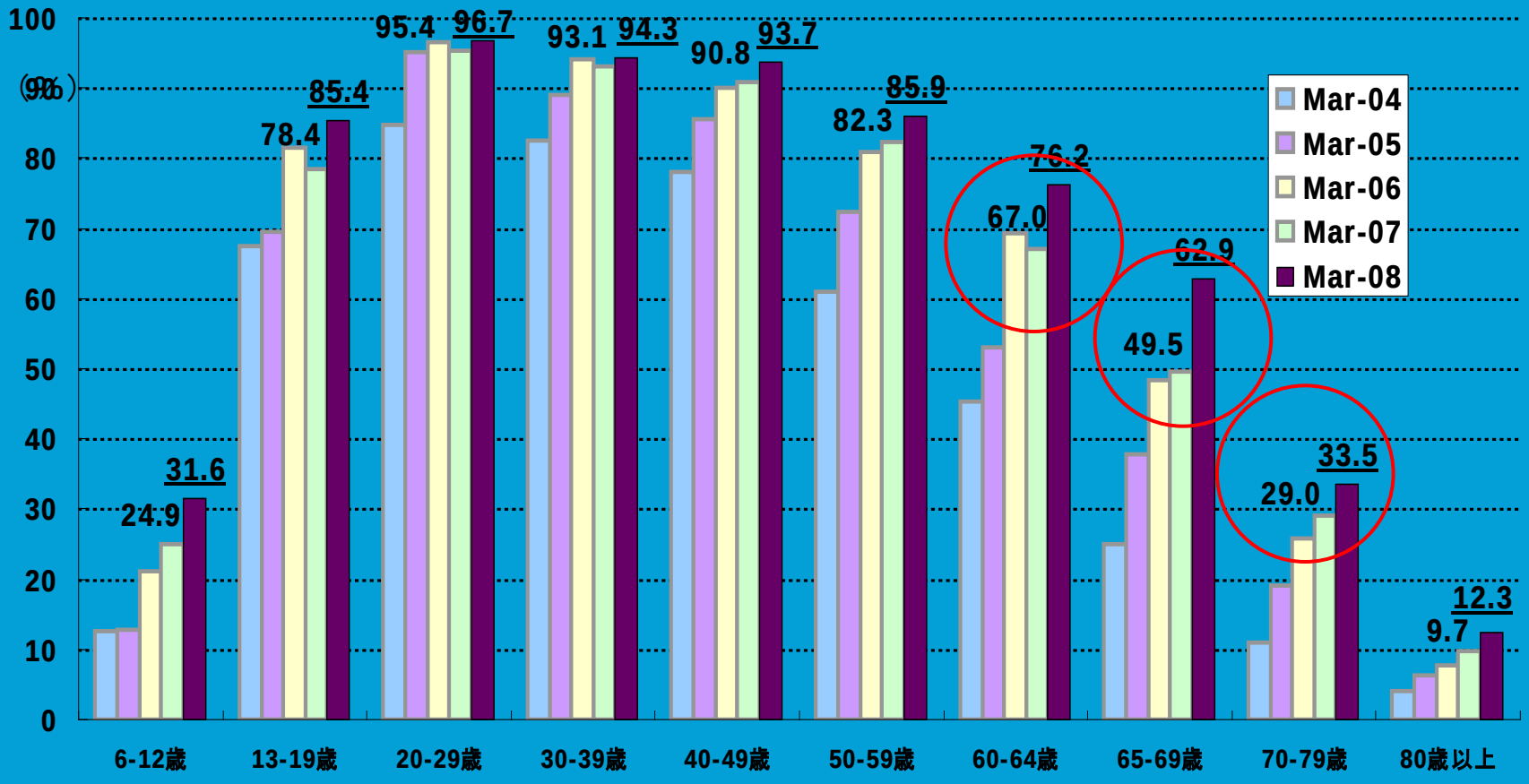
- How many Raku-Raku phones had been sold by NTT DoCoMo by 2009?

Initiative Launched in 2002

- **How many Raku-Raku phones had been sold by NTT DoCoMo by 2009?**

15 Million!

Mobile Phones - Japan Case Study, NTT DoCoMo Raku-Raku: Government Data



Source: Report on Trends in Communications Use, Ministry of Internal Affairs and Communications (MIC)

The Raku-Raku Story: Three Tenets of Universal Design

1. User centered: Recognizing the range of different capabilities and skills, past experiences, wants and opinions within the population
2. Population aware: Understanding the quantitative population statistics is vital to inform design decisions
3. Business focused: Achieving profitability in the commercial context and sustainability in the public context

AT&T VRS Video

Assistive Technologies vs. Universal Design

"Universal design" means the design of products, environments, programmes and services to be usable by all people, to the greatest extent possible, without the need for adaptation or specialized design. "Universal design" shall not exclude assistive devices for particular groups of persons with disabilities where this is needed.

CRPD art. 2 "Definitions"

Video and demo on ATs

- AT in the workplace
- Looktel
- iPAD demo of embedded ATs

3 - UNIVERSAL ACCESS OF ICTS IN THE CONVENTION ON THE RIGHTS OF PERSONS WITH DISABILITIES

‘If anybody asks me what the Internet means to me, I will say without hesitation: To me (a quadriplegic) the Internet occupies the most important part in my life. It is my feet that can take me to any part of the world; it is my hands which help me to accomplish my work; it is my best friend – it gives my life meaning.’

Dr ZhangXu.

ICT Accessibility: a Prerequisite for Persons with Disabilities to Exercise their Rights

Preamble (v):

"Recognizing the importance of accessibility to the physical, social, economic and cultural environment, to health and education and to information and communication, in enabling persons with disabilities to fully enjoy all human rights and fundamental freedoms".

Accessibility Requirements: ICTs on Par with the Built Environment and Transportation

« To enable persons with disabilities to live independently and participate fully in all aspects of life, States Parties shall take appropriate measures to *ensure to persons with disabilities access, on an equal basis with others*, to the physical environment, to transportation, *to information and communications, including information and communications technologies and systems...* » (Article 9)

CRPD Dispositions Covering ICT Accessibility and Assistive Technologies

Application Areas	CRPD Article	Accessibility dispositions with implications for ICTs	Reasonable Accommodation	Promoting Affordable Assistive Technologies
Non discrimination	5		✓	
E-Government	9.2.a	✓		
Media and Internet	9.1, 9.2.g	✓		
Television	30.1.b	✓		
Private Sector Services	9.2.b	✓		
Liberty and Security	14		✓	
Living independently	19			✓
Education	24	✓	✓	✓
Employment	27	✓	✓	
Political Rights	21, 29	✓		✓
Emergency services	9.1.b, 11	✓		
Culture & Leisure	30.5.c	✓		
Personal Mobility	20			✓
Rehabilitation	2			✓

Other Dispositions Promoting Accessible & Assistive Technologies

1. Mandate to support R&D for ATs
2. Accessibility features at early stage of product development and Universal Design
3. Obligation for States to set accessibility standards
4. Intellectual property rights
5. Promoting New Media and the Internet for Persons with Disabilities

4 - POLICY AND PROGRAMS IMPLEMENTATION

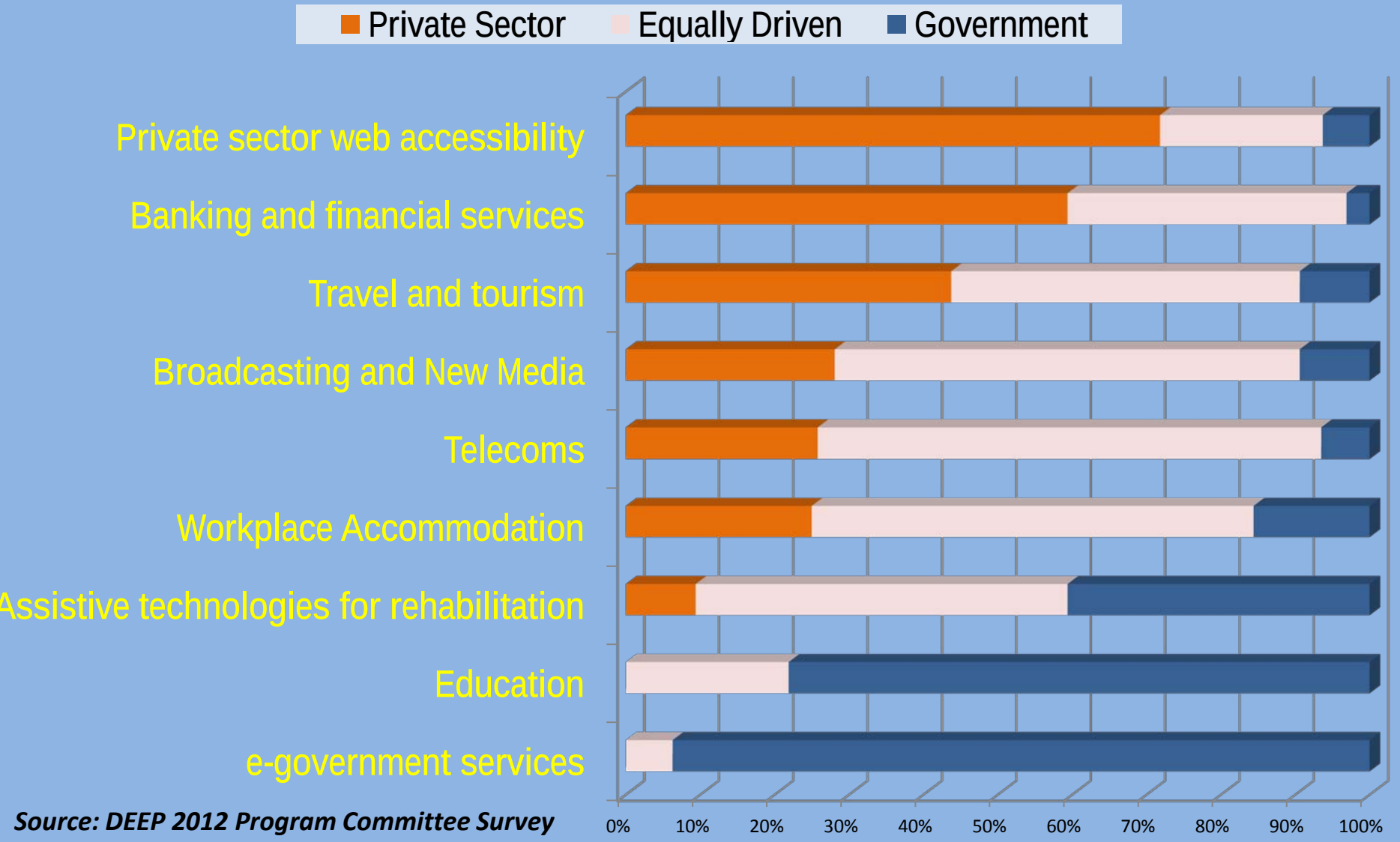
Examples of Policies and Programs Currently Implemented

- **Distribution of free equipment to deaf blind persons funded by a Universal Service Fund to give them access to communications (United States)**
- **Captioning of television (implemented by half of the countries which have ratified the CRPD)**
- **100% audio described television channel for the blind (Canada)**
- **Offering relay services for deaf and speech impaired users of telephony**
- **Ongoing monitoring of web accessibility and compulsory remediation of all e-government web sites (Republic of Korea)**
- **Implementation of computer based assistive technologies in schools and universities (over three quarters of all States Parties to the CRPD have some level of implementation)**
- **Providing reasonable accommodation at the workplace with publicly funded support centers (United States)**
- **Developing resource centers to support rehabilitation professionals offering ICT based assistive technologies to persons with disabilities (Qatar)**
- **Public procurement rules including ICT accessibility criteria (United States, European Union policy in development)**

Challenges

- Multiple stakeholders
- Pervasive applications and services
- Considerable variations by sector
- Different areas of government
- Lack of involvement of persons with disabilities in designing policies and programs

Business or Government?
Who Should be Driving e-Accessibility?



Source: DEEP 2012 Program Committee Survey

G3ict - DPI CRPD Progress Report on ICT Accessibility

- Annual survey of progress made by Sates Parties in implementing ICT Accessibility
- Sets benchmarks for in-country advocacy
- Helps raise the bar by pointing to good practices

Measuring Three Building Blocks towards Implementation:

1. **Country legislative, regulatory and programmatic commitments**
2. **Capacity of States Parties to implement those commitments**
3. **Actual results for persons with disabilities**

Consistent with UNDP guidelines on Human Rights reporting (Structure, Process, Outcomes)

33 States Parties to the CRPD Surveyed with DPI in 2010:

Argentina	El Salvador	Portugal
Austria	France	Rwanda
Bangladesh	Germany	South Africa
Belgium	Guinea	Spain
Brazil	Hungary	Thailand
Burkina Faso	India	Tunisia
Canada	Kenya	Uganda
Chile	Mali	United Kingdom
China	Mexico	United States
Costa Rica	Moroco	Yemen
Denmark	Nicaragua	Zambia

Results: Good Progress of Disability Legislation among States Parties

- **91% have a constitutional article, law or regulation defining the Rights of Persons with Disabilities**
- **72% have a definition of "Reasonable Accommodation" included in a law or regulation regarding the Rights of Persons with Disabilities**

ICT Accessibility among State Parties, However, is Lagging

- 56% have a definition of accessibility which includes ICTs or electronic media in the country laws or regulations
- 44% don't have one

Which is Reflected by the % of State Parties with Specific Policies

56% Television

56% Web sites

47% Fixed telephony

47% Mobile telephony

41% ATMs and electronic kiosks

38% Digital talking books

34% Public building displays

31% Transportation public address systems

While Capacity to Implement ICT Accessibility Policies Is Deficient

- **59%** do not define, promote or monitor accessibility standards for ICTs
- **65%** do not define public procurement rules policy promoting accessible ICTs
- **87%** do not have statistics or data accessible for the general public about digital access by persons with disabilities
- **91%** do not have mandatory training programs (at universities, vocational schools etc.) for future professionals about digital access for persons with disabilities

Country Actual Implementations: Data Points

78%	Have closed captioning or sign language interpretation implemented by TV broadcasters
69%	Mention having accessible government web sites
47%	Have wireless handsets with accessible features
44%	Mention having accessible web sites among the top 10 commercial and media web sites
44%	Have accessible ATMs or electronic kiosks deployed

Affordability of Assistive Technologies Remains a Key Obstacle

- Example: availability of Assistive Technologies at Major Universities:
  - Worldwide average: 59%
  - Developed countries: 82%
  - Least Developed Countries: 25%

Conclusions for Advocacy

1. Many solutions exist which are not implemented even when policies are in place
2. Legislation, regulation and strict enforcement are essential to affect change but cannot work in isolation
3. Awareness raising and capacity building are essential success factors
4. ICT Accessibility stakeholders vary widely by application sector, i.e. Education, Workplace, Telecommunications or Broadcasting
5. When multiple stakeholders work together, better results can be achieved

Private Sector Roadblocks

- **Demographic trends point to a large market opportunity for accessible ICT products, applications and services but:**
  - **Product and services developers are generally not aware of accessibility issues nor trained in the basics of Universal and Inclusive Design**
  - **Private sector is ill-equipped to evaluate ROI on accessible products and services design**
  - **Compliance ends up driving behavior more than market opportunity, accessibility driven by legal departments**
  - **CSR strategies not a substitute to mainstream marketing strategies**

Mobile:
An Unprecedented Opportunity

- Mobile technology economies of scale, lower costs
- Global reach including in least developed regions
- Impact of universally designed mobile products demonstrating value of accessibility to all users, raising consumer expectations
- Spill over technology effect to all digital interfaces

5 – Resources

e-Accessibility Policy Toolkit for Persons with Disabilities

A Joint ITU/G3ict Toolkit for Policy Makers Implementing the Convention on the Rights of Persons with Disabilities

Search the Toolkit:

Google™ Custom Search Search

Guides by Policy Area

- Telecom/broadcasting
- Education
- Labor/social affairs
- Interior/homeland
- Health
- Transportation
- e-Government services
- Local government
- International cooperation
- Public procurement

Tools for Policy Makers

- Why a Toolkit?
- Introduction to e-accessibility
- Examples of accessible ICTs
- Who benefits?
- ICT in the Convention
- Assessment Framework
- Full text of the Convention
- Tips on conducting accessible meetings

UN Secretary-General Ban Ki-moon on e-Accessibility

Partners

UN Enable
UN-GAID
ITU-T (Standardization)
ITU-D (Development)
G3ict

Toolkit Contents

Meet our Editors

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Centre for Excellence in Universal Design, CEUD/NDA Ireland

Editorial team and contributors

Francesca Cesa Bianchi
G3ict Toolkit Editorial Coordinator

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Search case studies by:

- Type of disability
- Domain of application
- Technology
- Country

Other G3ict resources

Country profiles
White Papers, publications
News and Events
ICT accessibility company profiles

e-Accessibility Initiatives

- ITU Accessibility (JCA-AHF)
- Web Accessibility Initiative W3C
- Global Partnership for Disability and Development
- Dynamic Coalition on Accessibility and Disability
- Digital Accessibility and Inclusion Index for Persons with Disabilities

Free Tools Available for Advocacy

- **www.g3ict.org : ICT accessibility news, publications and reports, expert zones**
- **CRPD ICT Accessibility Self-Assessment Framework (check list for country CRPD ICT accessibility compliance) www.g3ict.org**
- **e-Accessibility Policy Toolkit for Persons with Disabilities www.e-accessibilitytoolkit.org**
- **Joint ITU-G3ict reports Q4 2011 on:**
  - **Accessibility for mobile**
  - **Accessibility for television**
  - **Universal Service Funds programs for ICT accessibility**
- **Benefits and costs of e-Accessibility – in cooperation with BrailleNet (March 2012)**

ICT Accessibility YouTube Video Clips

- CRPD, Disability and ICT Accessibility (ICT Qatar & G3ict):
http://www.youtube.com/watch?v=7vbSZ4D03z4

- Web sites accessibility barriers and solutions: BBC inquiry with examples:
http://www.youtube.com/watch?v=U2VVxrWun6A

- Definition and short review of main categories of assistive technologies:
http://www.youtube.com/watch?v=HXchQnJ6PoE

- Accessible and assistive technologies in the workplace – interviews and demos:
http://www.youtube.com/watch?v=aI6ySNNCrhM

- Assistive Technologies training program: Easter Seals Crossroads case study:
http://www.youtube.com/watch?v=Vff8thzMWAQ

- Thai blind user demo of her accessible mobile phone
http://www.youtube.com/watch?v=rcSniex5E0Q

- Captioning for web television:
http://www.youtube.com/watch?v=IhOeyRHKprI

- Advanced Optical Character Recognition and Text to Speech application:
http://www.youtube.com/watch?v=Lf-0Dj95SgY

- Introducing iPods i Special Education:
http://www.youtube.com/watch?v=VTSM0m6aT9M

- AT&T Video Relay Service
http://www.youtube.com/watch?v=ys_p_dfRXYM

Thank You for your Attention

axel_leblois@g3ict.org

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