## **Smart Technology means Smart Solutions for Persons with Disabilities**

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Moving from Advocacy to Action From Information Disability to Knowledge Disability ICT = Equality + Inclusion + Empowerment

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## Small changes can make a world of difference in the lives of PwDs

### **Shocking Facts!**

15 per cent of the world's population lives with a disability. This represents about **1 billion people** globally. (ICTs), such as mobile phones, satellites or the Internet, are a unique infrastructure that expand access to key public services, promoting digital inclusion. Throughout the world, persons living with disabilities are already benefitting from the advantages of ICT-enabled applications.

But more needs to be done. To extend the benefits of ICTs to all, ICTs have to be made accessible to persons living with disabilities, so these technologies constitute an opportunity and not a barrier.

Together with Policymakers + Regulators + Operators + Industry Leaders + Consultants + Experts. We are able to plan what we need to do to achieve SDGs for PwDs

# **Smart Technologies = Smart Solutions**

Smart Telecentres Smart Phones Smart Home Systems Smart TV Smart Mobility Services Smart Thinking ... Smart Living .



## **Technology for Persons with Disabilities**

Accessible Features available

Technology is here today to serve persons with disabilities

Special services offered

Assistive

Features

available

The technological advances for PwDs in the position of education, e-learning inclusion, employment are fast developing to benefits and improve capabilities of PwDs

# Why ICT for PwDs?

In general, Improve Quality of Life!

Mainstreaming, Mobilizing and Access to Information and Knowledge. New Pedagogically Methods.

Equality, Inclusion and Empowerment.

Education, Rehabilitation and Employment Opportunities.

Capacity Building and Combating Poverty.

Break Isolation and Providing Prospects to Communicate. Social and Economic Integration in Communities.

## **ICT** and Capacity Building of PwDs.

Very often in developing countries, PwDs have been excluded from social and market economies and have been marginalized .

Although PwDs are now more visible than ten years ago, certain groups are still isolated in closed, overcrowded institutions, denied rights and respect for their human dignity. Many people with disability remain objects of charity.

So we need improve the standard of living of PwDs through capacity building b y the following objectives:





ICT for Education and Training

ICT for Creativity Skills

ICT for Employment and Jobs Opportunities

ICT and web for e-Inclusion

ICT for Access Knowledge

ICT for Awareness

In General: ICT for Integrate Socially and Economically

## **Empowering Persons with Disabilities through ICT & AT**

- (ICT) has been identified as an important aspect of the wider strategy for the social inclusion and e-learning through the following topics:
  - e-Learning at Distance
  - Reading Digital and Audio Libraries.
  - Internet, Broadband
  - Winning communication
  - Access point in disadvantaged communities through Telecentres and AT centers

## **Primary Objectives**

- Promote e-inclusion, e-learning of the PwDs and maximize the use of IT skills.
- Bridging the digital divide for PwDs.
- Facilitate access to education, training, culture and remote services.
- Readiness for employing and creating job opportunities.
- Sharing knowledge and experiences.
- Eradicate extreme poverty for PwDs.
- Implementation of many Telecentres and Assistive Technology centers
- Implementation Telecentre Academy for disabilities and providing them training course and (e)-services .

## **Definition of Assistive Technology**

Assistive Technology helps people learn, communicate and live more independently. AT is any product or service that maintains or improves the ability of individuals with disabilities to communicate, learn and live independent, fulfilling and productive lives. Assistive technology is used in education, employment, healthcare, residential homes and domestic settings

## **COMMON MISCONCEPTIONS About Assistive Technology**

All AT is computer base	С
AT solves all problems	

All AT is complex Only AT specialists deal with AT AT is a one-shot process

Only students with disabilities need AT

## **AT Continuum CHARACTERISTICS**



## **Assistive Technology and Adaptive Tools**

Although assistive technology is commonly thought of as computers, hardware and software, there is actually a continuum of technology, ranging from "low tech" to "high tech".



Global Positioning System (GPS)

## **Mobile Accessibility**

Smartphone for persons with disabilities means (SDGs). Smartphone **bring new ear for PwDs** iPhones, iPads, iPods, Android devices and Windows phones all have features that may make life easier for people with learning and attention issues



## SMARTPHONES FOR Persons with Disabilities



## **Mobile Accessibility**

Today Accessibility features are built into most Smartphones including the Apple iOS, Android, Amazon Fire OS and Windows operating systems.

## **Smartphone and Tablet have Built-in Technology**

- An excellent example of **Assistive Technology** with the potential to enhance the Education, Independently, Communication, Awareness, Emergency Preparedness, Employment, and Health
- Have the capability to run multiple applications that support and accompany students in their day-today activities.
- Strive to make life of persons with disabilities easier.
- Identify where they are, and what they are doing, what they want to do like calling a cab or providing remote monitoring by using apps.
- Increase their independence and safety and provide more opportunities to stay in touch with the outside world.

### For example:

- People with blind and visual impaired can listen to screen readers, adjust reading speed, increase screen fonts and contrast etc.
- People with hearing disabilities have built in access to closed captioning, hearing aid compatibility, TTY modes, and stereo to mono audio etc.
- Individuals with limited mobility can use voice commands, one handed navigation and shortcuts and low motion modes etc.
- Voice technology recognizes what they are saying and providing directions when walking.

Smart Telecentre for Disabilities is not just devices such as computers, assistive tools, telephones and connectivity but also entail the possibility to open up for persons with disabilities to create, share and acquire knowledge to close the **Digital Divide** and moving from **Exclusion to Empowerment** 



## **Building Smart Telecentre for Disabilities, Services and Equipment**

### Services and equipment often need to be modified or customized to meet the individual needs of PwDs.

- •Alternative input devices such as: (Alternative keyboards, Electronic pointing devices, Sip-and-puff systems, Wands and sticks, Joysticks, Trackballs, Touch screens).
- •On-screen keyboards and Keyboard filters.
- •Screen enlargers, or screen magnifiers
- •Braille screen and Braille printer.
- •Refreshable Braille displays.
- •Light signaler alerts.
- •Reading tools and learning disabilities programs
- •Specialized software.
- •Specialize tools such as: Eyetraker, Proxtalker, Big track, Big keys etc..
- •Visual Aids, Screen readers
- •Speech recognition or voice recognition programs
- •Text-to-Speech (TTS) or speech synthesizers
- •Talking and large-print word processors
- •TTY/TDD conversion modems



Local network and all the necessary equipment for connection to the Internet.
Academic and Learning.
Alternative access aids.
Voice activated telephones.
Manual wheelchairs.
Aids for daily living. And digital hearing.
Electronic organizers
Closed Caption Televisions (CCTV's)
Amplifiers and Books on CD
Environmental control units (ECU)
Bluetooth integration
Ergonomic tables and chairs

### Impact of Innovation Center on Accessibility on Community Development



## **Case Studies: Salamieh Telecentre for Disabilities, a Model for SDGs**











Persons with disabilities should have the same rights to participate in the Information Society as other citizen



Students with Physical Disabilities.



Students with Blindness and Visual Impairments.

Students with Hearing Impairments.

**Beneficiaries** 

Students with Intellectual Disabilities.



Students with Learning Disabilities.



Parents of SwDs and Disadvantaged Communities.

The center has a mandate to connect people with a disability to technology through the provision and support of accessible technology. The strategic vision of Salamieh telecentre is to connect people with disabilities to ICT to make life easier, smarter and better.

## Students with **Physical Disabilities**

**ICT tools can offer support through:** 





Assistive technology tools and computer access devices

Maximizing the disabled inputs an utilizing the specialized software

Hand in hand with success makers



"Noura Arsalan " said: I have the pleasure to tell you, I have been lucky enough to obtain better chances for my future career. Your courses ICDL at Salamieh community centre helped me to get my new job. (Noura 28 years.)

#### Telecentres for physically disabled people

Noura is a physically disabled student in Salamieh Telecentre. She is at the prime of her age but till now had a gloomy outlook towards life. Currently, she is a regular visitor to the telecentre and is learning some more software applications in the telecentre. After having been trained in handling and operating computers, her outlook towards life has changed. She has mastered certain softwares and has received her International Computer Driving Licence (ICDL). She is now working at the Study Centre for Handicapped Research as a trainer for disabled people on ICDL examinations.



Source: Telecentre Magazine, January 2009

## **NO ONE IS LEFT BEHIND**









Trained groups of students with Physical Disability on applications programs such as: ICDL, Graphics Design, Web Design. We give them a good opportunities for education and job

## Students with Blind and Visually Impairment

ICT tools can offer facilitate for blind:

Talking MS-Office applications.

Big pointer utilities.

Screen magnifiers

Screen readers.

Electronic Braille and others tools.



Things that are kept in mind while designing the programs.

- Position of the Screen.
- Clarity of the Display.
- Speech Recognition.
- Optical Character
- Recognition (OCR)
- Video Magnifiers.
- Web Access.



Adaptation program in Arabic content for Blind and visually impairment, for example, free open source assistive technology such as NVDA "None Visual Desktop Access"



"Bassem Yazagi , attended the second phase of the (WSIS) in Tunis 2005, He underwent a training course on IBSAR program, now Bassem is working a trainer for the blind students at CTC in Damascus.

#### **Telecentre for visually impaired**



Bassem Yazagi, a 25 years old man, has been suffering from severe blindness for some years and that was reflected on his psychology and manners. After making a visit to the Salameieh telecentre new vistas have opened up for him and surprisingly, his hopelessness has given way to new hopes and is now turning into a miracle.

He underwent a training course on speech recognition programme and was taught the usages of ICTs and taught him to use it properly. Now, Bassem is working as a trainer for the blind and visually impaired students at Computer Training Centre in Damascus.

#### Source: Telecentre Magazine, March 2009

Hand in hand with success makers



## **ICTDAR Programme**



Launched the first project in Syria through ReefNet Project at Salamieh Telecentre, 2005-2008 Salamieh Telecentre equipped with: •Four Ibsar Screens •Braille Printer •Broadband Internet Connection •Communication Facilities •Friendly Environment Specialized trainers and volunteers









ICTARB promote blind & Visually Impaired in their skills and rehabilitation and enabling them to access e-Learning and new job opportunities



The objectives of ICTARB are to provide the Blind with ICT tools that will enable them to be independent and self-reliant in Salamieh Telecentre



**Information**: All trainees that shown above the central visual acuity of 20/200 or less in the better eye with the best possible correction, as measured on a Snellen vision chart, or a visual field of 20 degrees or less.

27 Years old 45 Years old

## **Students with Intellectual and Learning Disabilities**

ICT plays a vital role for students with "Autism, Down Syndrome and Dyslexia.



We can benefit from the use of ICT:

To support individual children and adult needs.

To provide them access to online software resources

To provide special training, language development and cognitive skills.



### The main areas are focused on:

Computer Assisted Instruction (CAI) can help in many areas, including word recognition, math, spelling and even social skills.

Communication: E-mail, Internet, Mobile Phones, SMS, Special Chat.

Compensation: Movies, Music, Games, Special Services.

Competence: E-Learning Systems, Special Training.

Cognition: Rehabilitating Programs – IT Persons training of brain injured, Alarm system, Expert panel, consultations online.

## Hand in hand with success makers



Roza was enrolled in one of the IT courses answered when asked why you are doing this course? she said: "I want to show the world that though it may be true that I am disabled, I am not disqualified".

### **Telecentre for learning disablity**

Roza Al-Yazji, a twenty-two year-old girl, has been suffering from many health problems, including speech disorder and learning disabilities. She was not admitted to state schools because she couldn't continue learning with her colleagues in the classroom. At the Salamieh telecentre, she was imparted with a lot of training, designed within the telecentre, to overcome her intellectual impairment. Roza showed tremendous committment to do the tasks assigned and gradually started to begin a new life. After nine months of training she was able to perform her tasks brilliantly. Nowadays, she regularly takes part in public service through a local public service organisation. New Approach and Smart Learning for Children with Intellectual Disabilities Listen, Look, Think then Answer

New Arabic book and new Software Program.

This program is designed for children with Intellectual, Dyslexia, Autism, Down Syndrome. The program designed as a smart learning for them. Any student with intellectual disabilities can benefit from this program. Enhance their memorization and thinking skills. The program is tailor made to meet the needs of children with mild/moderate disabilities.

The program is designed in accordance to the Arabic content.

It's suitable for local environment especially in Arab region. The program allows the teacher/parent to record and measure progress and enhance the communication capabilities of children with mild intellectual and learning disabilities. Purpose of program implementation of proven teaching methods in the following areas: Listening, Identifying, Naming, Matching, Auditory Processing, Memory Enhancement, Reading, Vocabulary.













Training Students with Intellectual Disabilities at Salamieh Telecentre on the Program







Training Specialists on "Listen, Look, Think then Answer" program in Sultanate of Oman

We need building a strong team for programming and updating Arabic software and Apps for PwDs. I have started for that! See examples:



nativiti (genet) com

### **ICT for Hearing Impairment**

ICT can also be made a tool of empowering and facilitate the use of language development activities.

**ICT tools can offer** facilitate for hearing disabilities



Symbol or picture enhanced text can bring meaning to print illustrated concepts.

Keyboard overlays make writing more accessible and access to the words.



Text messaging and e-Mail.

Interactive whiteboards.

ICT can also organize their ideas and graphics and simulate writing as well as learning.



Symbol generating software's such as word processors, clip art, graphics design etc..,



ICT given Deaf and Hearing Disability the opportunity to improve their chances at finding employment and also to enhance their current careers

Since 1994 in Syria we have launched a new sign language for teaching students with hearing disability on computer applications and I suggested to create a new dictionary for ICT and Accessibility sign language.

- The strategy plan was launched at Regional Follow-up to the Outcome of the World Summit on the Information Society, in Damascus, Syria 2009 through:
- (RPoA) for Building the Information Society Name of Project Proposal
- Telecentres for Disabilities in MENA region (ESCWA project)
- <u>Unfortunately the project has not been</u> <u>implemented in spite of communication with a lot</u> <u>of partners and organisations</u>

Telecentres for Disabilities in MENA region ESCWA project

http://css.escwa.org.lb/ictd/850/Trac k3/Nabil\_EidRPoA\_ICT4D\_PWD.p df





Created Social Network Community of ICT&AT 4DPwDs http://ict4dpwd.ning.com

Numbers of researchers were reached out more than 450 members and they are doing successfully in the field of ICT4DPwDs. But unfortunately the network is stopped due lake of fund and support

### Hopes vs. constraints

List of challenges that are still to be addressed while outlining concrete actions to be undertaken by each group of stakeholders and a set of indicators to help measure progress towards the achievement of Sustainable Development Goals for Disabilities. In developed countries for example, I think that challenges are more related to politicians, decision makers, who do not realize the importance of the needs of PwDs to include disability issues within their National plans and development strategies. Whereas in developing and least developed countries challenges could be more related to awareness, culture and resources.

## The main challenges

•Limited finances for research and deployment on accessible ICT and AT solutions.

•Lack of specialized teacher training, limited flexibility in training options. limited availability of specialized hardware and software resources.

•Lack of formal national support structure for ICT and AT for disabilities.

•Lack on focusing on find employment for PwDs.

•There are a lot of programmers in Arab countries ,but lack access to appropriate Arabic content so we lost a links with them to develop researches and programs that benefit PwDs.

•Lack of official statistics on the numbers of PwDs in the Arab countries, so we have a problem for this issue for development ICT and AT to PwDs. ICT Challenges in the Arab States for Persons with Disabilities



Nabil Eid, Telecentre Foundation

## **MY PERSPECTIVE**

Working for launching more initiatives and innovations in ICT Accessibility and ICT4D PwDs, and play as facilitator within and outside Arab Region.

Develop and extensive research to activate the role of ICTs and finding innovative and creative solutions to help and connect all PwDs.

Arrange local, regional and global initiatives through ICT&AT issues for development PwDs

Create an efficient team work to benefits PwDs and create team work from disabled to direct more tasks and help other disabled through training, guiding, helping in their life and marketplaces online.

Collaborate with universities and development researches, focus on innovation in the area of Arabic language solutions to expand the reach of ICT Accessibility solutions.

Search of new paradigms for re-engineering education, design academy, lead and manage R&D program.

Working closely with UN organizations such as ITU, G3ICT, UN-Gaid, Unesco and AT companies etc..

Put disabled people at first priorities and always remembering that PwDs are waiting for services and advocacy.

Getting funding opportunities for raising PwDs and submitted researches, case studies, innovations and support local language and Arabic content, there are certain issues that need to be addressed in localization.

Making Arabic sites accessible to PwDs and create network, provide platforms to maximize the use of ICT and AT for users at home, marketplaces and support resources.

## Suggestions: Innovations and Ideas for Regional Center on Accessibility

#### What a Person with Disability Needs to Start?

#### Self-Employment and Entrepreneurship

How to help PwDs for building their small businesses in the Arab States?

Entrepreneurship spurs economic growth, but how do we spur entrepreneurship for persons with disabilities?

Are there successful models in the Arab world? Please share us these success stories!

Nabil Eid RCC@TCF MENA Region

Self-Employment and Entrepreneurship, Small Business Incubator for Persons with Disabilities



MENA

### Digital Literacy Campaign for girls with Disabilities



I will start disseminate and work on the first item: Digital Literacy Campaign for Young Women with Disabilities

## Suggestions: Innovations and Ideas for Regional Center on Accessibility



Inclusion density

Emergancy Preparedness

Commerciante

Marginet,

Access to the curriculums and learn alongside their peers through new pedagogical methods, access to remote resources, collaboration between individual and groups of people in widely diverse geographic locations and online experts/ mentors, virtual learning communities, home/school communication.

# MY RESEARCHES, RELEVANT PUBLICATIONS AND PAPERS FOR GLOBAL INITIATIVES ON "ICT for Disability"

•International Telecommunication Union-ITU Digital Literacy Campaign for girls with Disabilities

•ITU, Arab Regional Office: Guidelines for National and Regional Strategic Plans on Disability in the Arab Region.

•United Nation Department of Economic and Social Affairs (DESA) Innovation and technology for persons with disabilities

#### •Telecentre Foundation, English website

 Self-Employment and Entrepreneurship, Small Business Incubator for Persons with Disabilities

- <u>Digital Literacy Campaign for Young Women with</u> <u>Disabilities/Action2015.MENA</u>
- •ICTs Challenges in the Arab World for Persons with Disabilities
- •Smartphones bring new ear for Persons with Disabilities

#### •Telecentre Foundation, Arabic website

• <u>Assistive Technology and Disaster Risk Reduction for Persons with Disabilities</u> in MENA Region

- •ICTs Challenges in the Arab World for Persons with Disabilities
- •Smartphones bring new ear for Persons with Disabilities

•United Nations Economic and Social Commission for Western Asia Telecentre and Disabilities

#### •Other Publications:

•Book and software: Teaching children with Intellectual Disabilities •Book: Arabic Telecentre Community

More Info on: FB Page AT4Disabilities

### Guidelines

National and Regional Strategic Plans on Disability in the Arab Region 2015-2020



Community

Employment

Protection

Education

#### Rehabilitation

The purpose of study to:

Statistics

Powerty

Advocacy

Healt

Establish a high level policy framework to give coherence to, and guide government's activity across mainstream and disability-specific areas of public policy.

Research

Provide national and regional leadership toward greater inclusion of persons with disability.

> Nabil Eid RCC for the Middle East and North Africa Telecentre Foundation neid@telecentre.org

# No one left behind

Building a better world for children with disabilities

1 Goal Education for All Design for all Capacity Building Mov Model ICT Accessibility Turning researches into practice for students with disabilities

Provide technical assistance on strategies to help students increase engagement in school Appropriate

public education

Increased access to general education curriculum

## No one left behind



Disabled but not disqualified

Moving from Exclusion to Equality

Reducing the number of students who drop out of school

No student left behind

Removing barriers Of course, change is never easy

Improving Educational Outcomes for Students with Disabilities

## No Student left behind

Together we build a better future Accessibility to eLearning for people with disabilities Information Society for All

Moving from Advocacy to Action

UN-CRPD assures the right to education "in the most appropriate languages

## Thanks for your attention Nabil Eid