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**DAISY: a better way to read, a better way to publish –
a contribution of libraries serving persons with print
disabilities**

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Abstract

1. Introduction

DAISY, Digital Accessible Information System, is an open international standard for accessible multimedia developed by libraries serving persons with print disabilities in collaboration with the target users around the world.

The core of DAISY technology is synchronization of text, graphics and audio based around W3C recommendations to meet the needs of people who require diversity of accessibility features of reading materials to share human knowledge.

DAISY has been developed by the DAISY Consortium (http://www.daisy.org) by committed librarians and libraries. The most current DAISY specification is known as ANSI/NISO Z39.86-2005 [1]. The DAISY Consortium is officially appointed as the maintenance body of this US national standard after the US Library of Congress stepped down from the maintenance body status.

To date, the Consortium has 14 "full member" countries where Digital Talking Books in DAISY format are being produced in full scale [2]. There are 57 "associate members" who do not have voting rights [3]. Estimated number of titles available in DAISY format as of 25th May 2006 is 143,400.

Manufacturers who support DAISY standard join the DAISY Consortium as "friends". 25 companies including Microsoft and SONY in 8 countries are friends of the DAISY Consortium. There are at least 17 production tools and 27 types of playback tools are available.

2. Users of DAISY

Original DAISY as Digital Audio-based Information System was developed in Sweden by TPB, the Swedish National Library of Talking Books and Braille, to meet the demands of talking book on cassette users of professional readings who disparately require table of contents and pages to locate the exact point of cited documents. Quality of sound, long play and handy media, and compatibility of talking books borrowed by international inter library loan were major concerns of professional talking books readers.

User participation throughout the development process was one of the characteristics of the DAISY development. As early as December 1995, Pedro Zurita, Secretary General of the World Blind Union, joined the preparatory meeting to establish the DAISY Consortium and enthusiastically encouraged us on behalf of the blind users group. Norma Toucedo in Uruguay, Yaap in the Netherlands, Eva Bjork and Kicki Nordstrom in Sweden, and others have been very supportive for DAISY development on behalf of WBU.

Libraries serving people with print disabilities including blindness, low vision, dyslexia, learning disabilities, cognitive disability, intellectual disability, motor disabilities that prevent handling of books and documents, mental disabilities, and others, shared same concerns with user. In addition to user's concerns, libraries had to deal with shift of technologies from analog to digital soon or later.

The Section of Libraries for the Blind/IFLA took advantage of IFLA General Conference 1986 in Tokyo to hold an international symposium on digital talking books to explore a digital technology that meets all requirements of users as well as service providers. The conclusion of the symposium was that none of digital audio technologies at that stage met the requirements of the distribution of digital talking books[4].

In 1994, TPB and Labyrinten AB presented a prototype of PC based digital talking book at ICCHP Conference in Vienna.

3. DAISY Consortium

Several members of the Section of Libraries for the Blind met in Toronto in 1995 and agreed to develop international standards of digital talking books and approached to Labyrinten AB in Sweden and Shinanokenshi Co. Ltd. in Japan to encourage them to join the endeavor for open and non-proprietary Digital Talking Book standard development. The alliance for DTB standard development was successfully achieved through a meeting during the General Conference of IFLA in Istanbul 1995. The meeting concluded that we were going to establish an international standard in two years.

Based on the preliminary agreement of TPB, RNIB and Japanese Organization of Libraries for the Blind as well as manufacturers, Labyrinten and Shinanokenshi, we conducted an international field trial of DAISY with a prototype playback machine to identify the functional requirements of people with print disabilities in the world for the DTB standards.   Funded by the Government of Japan, the world field trial was participated by 1000 blind and visually impaired people in 30 countries in 5 continents including developing areas.

 The result was very obvious; people made complaints a lot on the prototype system but the bottom line was always encouragement for further development of the DTB standards.

4. DAISY Consortium and North American colleagues

When the DAISY Consortium was established in 1996 in Stockholm with 6 founding members, Sweden, UK, Switzerland, Spain, Netherlands and Japan, there was no participation from North America. After Germany, Australia and New Zealand, and Denmark joined, at the CSUN Conference on Disability and Technology in Los Angeles in March 1997, through the serious exchange of views and achievements between DAISY and RFB&D group, we could share some common interest for an open international standard development.

Based on the agreement of the DAISY Consortium made in Zurich in April 1997, the Consortium held an international technical meeting on DTB standard held in Sigtuna, near Stockholm Arlanda Airport. In spite of extremely short notice, it was attended by major players in the field. The conclusion was to recommend DAISY Consortium to explore standards based around Web technology, in particular HTML

and SMIL, Synchronized Multimedia Integration Language.

Immediately after successful Sigtuna Meeting, there was another meeting for developers hosted by the Japanese Society for Rehabilitation of Persons with Disabilities, JSRPD. Attendants included Jan Lindholm, Lars Soennebo, George Kerscher, Markku Hakkinen, Jun Ishikawa, Tatsu Nishizawa and Hiroshi Kawamura. The meeting concluded to collaborate for one united open non-proprietary file format around HTML and SMIL under the contract between JSRPD and manufacturers. This group actually followed up the implementation of the conclusion of the Sigtuna Meeting including support for W3C/SMIL development.

With all those initiatives, in August 1997, the DAISY Consortium invited RFB&D to join the Consortium just a few days prior to the deadline proposed in IFLA General Conference in Istanbul. The Consortium adopted functional requirements and the direction of file specifications development around W3C standards. At the Consortium meeting in Copenhagen, the Consortium appointed the Project Manager, George Kerscher. At IFLA General Conference in Copenhagen in 1997, we could celebrate to meet the deadline and confirmed that none of the major Talking Book producers in the world had implemented their own digital talking book system.

The DAISY Digital Talking Book specifications developed based on Sigtuna recommendation was approved as DAISY 2.0 specifications in September 1998.

5. Global Impact of DAISY – Vision of the DAISY Consortium

"Our vision is that all published information, at time of release to the general population, be available in an accessible, highly functional, feature rich format and at no greater cost, to persons with print disabilities." [5]

In order to achieve this vision, the Consortium develops strategies for technical development, implementation, advocacy and reaching out to developing world.

One of the unique activities of the Consortium in technology development is an open source software tools development to accommodate ANY languages including indigenous ones that have no writing scripts taking advantage of DAISY standard which enables users to navigate the audio/video contents in a structured manner.

The DAISY Consortium, in collaboration with IFLA/LBS as well as IFLA/LSDP and organizations of persons with disabilities, committed to the United Nations World Summit on the Information Society (WSIS) as WSIS Civil Society Bureau Disability Focal Point organization [6]. The WSIS Disability Caucus successfully add universal design concept in the summit documents [7]. DAISY is one of the best examples of universal designed to meet the requirements of everybody including who are with disabilities.

WSIS has identified various types of digital divide, for example, North-South and disabled vs.

non-disabled. DAISY for All Project of the DAISY Consortium intends to implement DAISY in developing world. So far, Thailand, India, Malaysia, Sri Lanka, Nepal, Bangladesh and Vietnam established DAISY focal point through this project. Free of charge local language version of DAISY playback tools are also made available in local languages.

Further technical development of DAISY to introduce fully accessible motion pictures, standard development for navigation of streamed contents, rethinking of intellectual properties rights, preservation and promotion of indigenous cultural contents, and transfer of diversity of human knowledge to future generations with full accessibility are being addressed in the WSIS plan of actions implementation process.

Knowledge based disaster preparedness development for persons with disabilities and the general public in the community is identified as one of the key areas to realize digital opportunity in the WSIS implementation process. Unesco and ITU already expressed their interest to collaborate with WSIS Disability Caucus.

With DAISY technology, libraries and librarians in the world are going to extend our reach to share accessible contemporary human knowledge world-wide to tackle global issues as one of key players, and transfer diversity of human knowledge and culture to the future in accessible format.

Synchronized Multimedia is the key technology of libraries in the near future.

[1] http://www.niso.org/standards/standard_detail.cfm?std_id=710

[2] List of full members of the DAISY Consortium as of May 2006:
Australia New Zealand Accessible Information Group (ANZAIG, Australia)
Canadian DAISY Consortium (CDC, Canada)
FNB Netherlands, accessible information for people with a print impairment (FNB, The Netherlands)
Japan DAISY Consortium (JDC, Japan)
Korea Braille Library (KBL, South Korea)
Media Association for Blind and Vision Impaired People (MediBuS, Germany)
National Library Service for the Blind and Physically Handicapped (NLS, USA)
Norwegian DAISY Consortium (NDC, Norway)
Recording for the Blind & Dyslexic (RFB&D, USA)
Royal National Institute of the Blind (RNIB, United Kingdom)
Spanish National Organisation of the Blind (ONCE, Spain)
Swedish DAISY Consortium (SEDC, Sweden)
Swiss DAISY Consortium (SDC, Switzerland)
The Danish National Library for the Blind (DBB, Denmark)

[3] List of associate members as of May 2006:
American Foundation for the Blind (AFB, USA)
American Printing House for the Blind (APH, USA)
Association Valentin Haüy (AVH, France)
Benetech (BT, USA)
Braille Institute of America (BIA, USA)
BrailleNet Association (BN, France)
Calibre Cassette Library (CCL, United Kingdom)
Celia Library for the Visually Impaired, Finland (CNK, Finland)
Center for Applied Special Technology (CAST, USA)
Communication Center of Minnesota State Services for the Blind (CCMSB, USA)
CPB/WGBH National Center for Accessible Media (NCAM, USA)
Danish Institute for the Blind Career Resources Centre (IBOS, Denmark)
Dorina Nowill Foundation for the Blind (FDN, Brazil)
Educational Testing Service (ETS, USA)
eTAP Ghana (ENABLING TECHNOLOGY AUDIO PARTNERS) (eTAP Ghana, Ghana)
Finnish Federation of Visually Impaired (NKL, Finland)
Flemish Library for the Blind (VLBB, Belgium)
Flemish Sound and Braille Library (VKBB, Belgium)
FORCE Foundation Resource Centre (FF, The Netherlands)
Foundation for Research and Sustainable Development (FRSD, TAMILNADU, INDIA)
Groupment des Intellectuels Aveugles ou Amblyopes (GIAA, France)
Hong Kong Society for the Blind (HKSB, Hong Kong China)
Icelandic Library for the Blind (BI, Iceland)
Independent Society of the Blind (ISB, Singapore)
Institute Nazareth et Louis Braille (INLB, Canada)
Italian Union of the Blind (UIC, Italy)
LA LUMIERE (THE LIGHT), Work for Blind and Low Vision People (LUMIERE, Belgium)
Lighthouse for the Blind of Greece (LBG, Greece)
Ligue Braile ASBL (LB ASBL, Belgium)
MERDS (MERDS, TAMILNADU, INDIA)
Mitra Netra (Friends of the Blind) Foundation (MNF, Indonesia)
National Association for the Blind (NAB, India)

National Council for the Blind of Ireland (NCBI, Ireland)
National Council for the Blind of Malaysia (NCBM, Malaysia)
National Council for the Welfare of Disabled Persons (NCWDP, Philippines)
National Institute for the Blind (INCI, Colombia)
National Institute for the Visually Handicapped (NIVH, India)
National Library for the Blind (NLB, United Kingdom)
National Work for the Blind (ONA, Belgium)
Norwegian Directorate for Primary and Secondary Education (DPMS, Norway)
Panhellenic Association of The Blind (PABGR, Greece)
Progebraille - Helen Keller (PHK, Belgium)
Royal Society for the Blind of South Australia (RSB, Australia)
Sight Savers International (SSI, United Kingdom)
Sound Waves (SW, United Kingdom)
South African Library for the Blind (SALB, South Africa)
Swedish Handicap Institute (HI, Sweden)
Swedish Institute for Special Needs Education (SIT, Sweden)
Taiwan Digital Talking Books Association (TDTBA, Taiwan)
Talking Book Library of the Austrian Blind Union (HOBS, Austria)
Talking Tapes/Texbooks on Tape (TTTT, USA)
Thai Blind People's Foundation (TBPF, Thailand)
The DAISY Lanka Foundation (DLF, Sri Lanka)
The National Library of Jamaica (NLJ) (NLJ, Kingston, Jamaica)
Torch Trust for the Blind (TTB, United Kingdom)
University of Cyprus Library (UCL, Cyprus)
Young Power in Social Action (YPSA, Bangladesh)

[4] Proceedings of 4th International Expert Meeting of SLB/IFLA, Tokyo, 21-23 August 1986, edited by Hiroshi Kawamura.   Tokyo, The Organizing Committee, 1988. (Text in Japanese)

[5] http://www.daisy.org/about_us/mission.asp

[6] http://www.dinf.ne.jp/doc/english/prompt/wsisindex.html

[7] United Nations Documents: WSIS-05/TUNIS/DOC/7, WSIS-05/TUNIS/DOC/6 (rev. 1)