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Business Case White Paper Series
Developing e-Accessibility
as a Professional Skill



Global Initiative for Inclusive Information
and Communication Technologies

Developing e-Accessibility as a Professional Skill

A G3ict Business Case White Paper Series

March 2014



Acknowledgments

This white paper follows discussions from the 7th European e-Accessibility Forum organized by the Association BrailleNet and Universcience in Paris, France, on March 18, 2013.



BrailleNet



un lieu
universcience

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About G3ict

G3ict is an advocacy initiative launched in December 2006 by the United Nations Global Alliance for ICT and Development, in cooperation with the Secretariat for the Convention on the Rights of Persons with Disabilities at UNDESA. Its mission is to facilitate and support the implementation of the dispositions of the Convention on the Rights of Persons with Disabilities (CRPD) promoting digital accessibility and Assistive Technologies. Participating organizations include industry, academia, the public sector and organizations representing persons with disabilities. G3ict organizes or contributes to awareness-raising and capacity building programs for policy makers in cooperation with international organizations, such as the ITU, ILO, UNESCO, UNITAR, UNESCAP, UN Global Compact and the World Bank. In 2011, G3ict launched the M-Enabling Summit Series (www.m-enabling.com) to promote accessible mobile phones and services for persons with disabilities and seniors, in cooperation with the ITU and the FCC (U.S. Federal Communications Commission). G3ict produces jointly with ITU the e-Accessibility Policy Toolkit for Persons with Disabilities (www.e-accessibilitytoolkit.org), as well as specialized reports which are widely used around the world by policy makers involved in the implementation of the CRPD. G3ict is funded by contributions from corporations and foundations. Its programs are hosted by international organizations, governments, universities and foundations around the world.

For additional information on G3ict, visit www.g3ict.org

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Foreword

Most digital content professionals recognize the legal and business case for developing accessible products and services following standards developed by the W3C consortium and Daisy. The United Nations' Convention on the Rights of Persons with Disabilities and European policies support e-Accessibility as a fundamental component of our increasingly digital world.

Nonetheless, campaigns exhorting e-Accessibility tend to ring hollow as the professionals concerned lack the basic training to be able to implement the associated techniques, methodologies and technologies. Accessibility is absent from the curricula of most universities, and companies rarely consider it sufficiently strategic to be the subject of employee training and development.

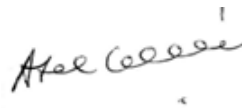
In the current economic climate, companies are pushed to do more with less. The business and legal consequences of non-compliance are such that a company can no longer afford to relegate e-Accessibility to the periphery. Never before has there been a more marked need for in-house skills to deploy e-Accessibility effectively. The skills of organizations' employees in implementing best practices in-house, or outsourcing to trained professionals, is crucial to the future success of e-Accessibility, and central to organizations' competitiveness, edge and growth ambitions.

The role of industry specialists and policymakers is paramount in fostering e-Accessibility as a professional skill. Governments and organizations wishing to see increased levels of e-Accessibility will need to act decisively to ensure professionals have access to quality educational resources.

This G3ICT White Paper presents and discusses the topic "Developing e-Accessibility as a Professional Skill" through a collection of position papers written by specialists from the public, private and non-profit sector, working at local, national and international level. This topic was the theme of the 7th European e-Accessibility Forum organized by BrailleNet and held at the Cité des Sciences in Paris on 18 March 2013. This White Paper would not have been possible without the enthusiasm, commitment and involvement of participants in this symposium.



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Preface

The professionalization of e-Accessibility, for an inclusive society



By Neelie Kroes, Vice president of the European Commission

An accessible information society is an on-going challenge. Regulation is an important instrument provided that it is properly applied. This is where IT professionals with the right skills and training on e-Accessibility have a critical role to play. Awareness raising, education, capacity building, and professionalization of the IT sector are crucial enabling factors for all aspects of e-Accessibility.

Several challenges remain open: establishing credentials for accessibility experts, introducing e-Accessibility programs in academic curricula, creating e-Accessibility certification programs, mainly at university level, greatly impacting the demand and supply in the sector. In this respect, I welcome the effort of the University of Linz, which is among the first universities in the EU to introduce a compulsory training on e-Accessibility in its IT curricula. I hope that other European academic institutions and organizations providing professional training will adopt similar requirements.

Nevertheless, we should not forget that we will not build an inclusive society on an army of experts alone: e-Accessibility touches on many areas, starting from human resources to communication and corporate social responsibility, both at private and public sector level.

As the Commissioner for the European Digital Agenda, I have put forward the Proposal for the Web Accessibility Directive, which sets harmonized accessibility requirements for public sector websites in the EU. The proposed legislation, which requires public administrations to make their websites accessible, will contribute to raise awareness and generate demand for accessibility professionals. I hope that the demand generated by the proposed web accessibility legislation will provide an incentive for incorporating accessibility in specialized and mainstream curricula.

In this White Paper, I have found many very interesting initiatives and ideas to further develop e-Accessibility as a professional skill. I hope you read them, endorse them and share them. They have the potential to make a difference. Together we can make the sector more professional to make our society more inclusive. The motto of the Digital Agenda for Europe is "Every European Digital". I thank you for helping me to make that happen!

Business needs for e-Accessibility skills

e-Accessibility at Groupe La Poste

The Groupe La Poste has taken a number of measures in order to strengthen digital accessibility within the Group, including the creation of a network of “e-Accessibility consultants” who are responsible for implementing e-Accessibility across information systems and ensuring that websites and digital content meet accessibility requirements.



By Michel Delattre, Director of Information Systems, Groupe La Poste

Michel Delattre graduated from the École Polytechnique and the École Nationale de la Statistique et de l'Administration (ENSAE). He began his career at the Institut National de la Statistique

et des Études Économiques (INSEE) and in 1986 he joined the Direction Générale des Impôts (central tax office) as Head of IT, Human Resources and Finance. In 1999 he joined Crédit Lyonnais as Head of treatments and services to customers. In 2004 he was appointed Chief Information Officer (CIO) at the Crédit Agricole Group. In 2006 he became CIO of Groupe La Poste and in 2011, Director of Information Systems.

Groupe La Poste is a public limited company (SA) which is 100% owned by public shareholders (the French State and public Deposits and Consignments Fund). The Postal Law of 9 February 2010 reaffirmed the four public service missions of the Group: delivery of mail to all French homes six days a week, provision of high street banking services, contribution to regional development, and distribution of newspapers and magazines. Groupe La Poste is made up of over 250 companies employing 260,000

professionals in four key business areas: postal services, parcel courier services, financial services and the La Poste retail brand.

Groupe La Poste's social and environmental responsibility policy aims to create value and long-term social cohesion for each of its stakeholders. Each of the Group's business units has its own quantified objectives and action plans. To ensure that they are successfully met and implemented, these non-financial objectives are embedded in the overall strategy of the Group.

Groupe La Poste is faithful to simple and modern values that lie at the heart of the organization: openness, consideration, fairness, proximity, sense of service and accessibility. The Group strives to offer services which are easy to use and distribution channels which are adapted to modern consumer habits.

For Groupe La Poste, accessibility comes in various guises: 24 hour access to services; accessible automated teller machines (ATM); accessible financial services; overall affordability and physical and digital accessibility to La Poste. 800 post offices are accessible to people of reduced mobility and 2600 post offices cater for people with sensory disabilities. There are also a number of dedicated web pages on the corporate website. Since March 2012, customers can check laposte.fr to see whether a given post office is physically accessible, or whether it is equipped with an accessible ATM.

Setting and meeting e-Accessibility goals

The Executive Committee has expressed its desire to strengthen the digital accessibility of its in-house and client-facing websites, and to meet AA criteria for web accessibility as specified by the *Référentiel Général d'Accessibilité pour les Administrations* (General Accessibility Reference for Public Organizations), a technical reference document derived from the W3C/WAI WCAG 2.0.

In order to put this into practice, a number of structural initiatives were undertaken in 2012, involving the Corporate Social and Environmental Responsibility Department, the Human Resources Department, the Corporate Communications Department, and the Information Systems Department.

First, a group-wide “Measurement and Reporting of Web Accessibility” protocol was drawn up in order to monitor the accessibility of the Group’s main websites.

Following this, a ‘digital access’ section was added to the 2012-2014 policy for employing people with disabilities. This addressed the accessibility of intranet sites, business applications and workstations for disabled employees of Groupe La Poste.

Finally, the need for specific e-Accessibility resources led to the creation of the following:

- A standard assessment tool for web accessibility intended to enhance the accessibility indicators defined in the protocol, and to enable different professionals (editors, web developers, etc.) to have the necessary tools to ensure their work complies with accessibility criteria
- In-house e-Accessibility training courses
- A network of e-Accessibility Consultants in the Information Systems department

e-Accessibility consultants at the core of the process

The Information Systems (IS) department was faced with the challenge of how to effectively promote best practice in e-Accessibility within the organization, and how to ensure that e-Accessibility criteria are met in all digital service projects. This resulted in the creation of a new role within the department known as the e-Accessibility consultant.

The role of e-Accessibility consultants

e-Accessibility consultants are responsible for implementing e-Accessibility across information systems and ensuring that the Group’s websites and digital content meet accessibility requirements. To do this, they carry out audits, give recommendations for development and contribute to the establishment of best practices.

The e-Accessibility consultants are involved in the very early stages of every new digital project to ensure that accessibility is embedded in the project requirements. They assist the IS teams throughout the project lifecycle, particularly in the coordination of user testing involving people with disabilities from within Groupe La Poste or from voluntary organizations.

The consultants contribute to Groupe La Poste’s e-Accessibility Consultancy community which is responsible for developing e-Accessibility resources (tools, guidelines, directives, charters, etc.) to be used across the Group, and keeping informed of important changes through networks of recognized experts.

Recruitment and training

e-Accessibility consultants tend to be web developers or designers who are recruited in-house. They are experienced professionals who bring a variety of skills to the job. They must demonstrate the ability to recommend technological solutions and participate in their implementation, from procurement to delivery. They must be able to advise, train, arbitrate, assess and monitor the accessibility of multiple institutional sites.

Consultants follow a three-day training course in-house on basic e-Accessibility awareness and how to write and develop accessible content, and usually complete a certified e-Accessibility evaluation training course taught over several weeks. These courses are given by accredited external agencies.

Integration in project teams

The e-Accessibility consultants are part of the IS Department and work closely with Quality Assurance teams to ensure that e-Accessibility is integrated into all IS processes (e.g. procurement, project management, etc.). They provide a support role in the early phases of new developments and redesign projects.

The e-Accessibility consultants also sit on a committee which meets twice a month to oversee the compliance of digital work environments for Group employees. Other committee members include disability consultants (Human Resources department), the Human Resources Manager, the IS Manager and the new Digital Management Department of the Group.

The sustainability of the role

In 2013, four e-Accessibility consultancy roles were created within the Group. The aim is to double this figure in 2014. The *Accord Handicap du Groupe La Poste* (disability agreement), signed on 8 March 2012, addresses the e-Accessibility needs of employees with disabilities, and explicitly mentions the role of e-Accessibility consultants, thereby securing their role within the Group.

Learning Points

- To ensure that e-Accessibility goals are met through the successful implementation of quantified action plans, they must be embedded in the overall strategy of the organization, and specified for each individual business unit.
- Information Systems Departments face a key challenge of how to effectively promote best practice in e-Accessibility within their organizations and how to ensure that e-Accessibility criteria are met in all digital service projects.
- Creating a network of e-Accessibility experts who are responsible for implementing e-Accessibility across the organization is an effective way to ensure that practical tools and best practice guidelines are kept up-to-date, and that workstations, business applications, intranet and client-facing websites meet an agreed set of e-Accessibility requirements.

Business needs for e-Accessibility skills

Accessibility: a basic skill for publishers

EPUB 3 provides a suitable format for the distribution of accessible digital books. But even if the technical specifications are fit for purpose, publishers are still required to make sure that content is accessible. For this to happen, there needs to be a radical revision of professional training programs to ensure that accessibility and digital content production become a core component of all publishing courses.



By Luc Audrain, Head of digitalization, Hachette Livre

Luc Audrain joined Hachette Livre 12 years ago. As an expert in the Innovation and Digital Technology department, he is responsible for following technological developments and supporting

editorial teams as the industry goes digital. As a member of the International Digital Publishing Forum (IDPF), Luc contributes to the evolution of the EPUB standard. He is also involved in standardization work in French and international organizations, and participates in metadata specifications, particularly for ONIX.

With more than 60 imprints, Hachette Livre is France's number one publishing group and third worldwide with subsidiaries in the US, the UK and Spain. Since 2012, Hachette Livre has been a member of the IDPF and has recently joined the World Wide Web Consortium (W3C).

Publishers are at the core of accessible e-book creation. In preparing authors' copy for publication, editors have access to best practice guidelines and increasingly powerful and efficient tools included in off-the-shelf word processing software. Together, these elements facilitate the implementation of structural and navigational elements which help to make content accessible.

These practices are also essential for repackaging printed content as reflowable digital content, and have been taught for many years in professional training schemes. It is now time for editorial teams across the sector to shift up a gear. How many tables of contents and indexes still exist as separate documents where a manual transcription of page numbers is necessary?

Ensuring accessibility and digital best practice are at the core of all training programs for both established and future publishing professionals is essential; it will have the double effect of driving both e-accessibility and e-book production.

The publishing workflow

Publishers are at the origin of book content. After contracting with authors, they receive text which must be edited, formatted, illustrated, laid out, converted to PDF for print and then converted to a digital e-book file.

The quality of the e-book file will depend on the skills and technologies used throughout the process. In order to create an accessible e-book, best practice must therefore be followed from the outset.

Tools for content editing

Since the 1980s, text processors installed on personal computers have greatly facilitated the task of editing content. This evolution has, however, been both a help and a hindrance to e-Accessibility. As text is no longer simply ink on paper but an assemblage of character codes, it can be distinguished and read aloud by computer software. However, an ill use of text processors can go unnoticed on the printed page, but result in non-structured, non-navigable and non-semantic content, which introduces serious barriers to digital products for the print-disabled.

Best practice

Best practice guidance¹ is at hand as text processors have been designed to:

- Help separate content from presentation;
- Help structure documents;
- Help identify the different semantic components of a text;
- Enable navigation within content;
- Identify the language of a given text;
- Provide tools to process machine-readable mathematical formulae.

Best practice is based on the effective use of these available functions.

Separating content from presentation

Typography is the process by which a block of text is composed to create a visually coherent whole for the reader. This visual presentation is not pertinent for the print-disabled, but centuries of paper reading have nurtured these typographic skills, and given rise to a deep-rooted confusion around content and presentation.

Typography has no meaning in itself, but is modulated from semantics. Therefore, as typography is a visual vehicle for meaning but not the meaning itself, content must be separated from its presentation. Meaningful information is interoperable and accessible whilst its presentation is not. Practical example: When using text processors, the application of semantic character style names is more important than adding particular visual effects to the text. For instance, when inserting the title of a work in the middle of a paragraph, though work titles are generally printed in italic, it is advisable to use a style named `Work_Title` rather than italics themselves.

All pieces of information should be identified even if they do not look any different from the rest of the text. When paragraph styles are named semantically, the content structure is portable. When building e-books in EPUB², it is easy to declare these different semantic components.

Structuring content to facilitate navigation

All content should be considered to be part of a tree within a container (the document) which has a root and a set of branches. This principle should be used to create an explicit hierarchy which is applied to all section headings (parts, chapters, sections, etc.) and provides the basis for navigation. When this is successfully applied, the table of content is no longer a document in itself, but rather the summary of the core document's structure.

Indexes follow the same principle. An index is not a part of the document but instead an extraction of words ordered alphabetically along with their locations within the document. Once index markers have been inserted in the text, the index can be generated automatically and updated at any time during the editing process. These in-text indexing markers are then available for dynamic navigation within e-books.

Practical example: All text editor software packages have built-in tools to extract a table of contents from section headings. It is necessary to learn how to use these hierarchy tools, for instance the tree panel in Microsoft Word, to build tables directly from the structure of the document as a hierarchical tree of paragraph styles.

Defining the language of text

Language can be explicitly defined on paragraph styles globally and on characters styles at specific points in the text. Once defined, the appropriate spell-check and grammar check can be used where relevant. This will also ensure screen readers give the correct pronunciation to words that are written in a different language.

Making mathematical formulae machine-readable

Mathematical formulae are not just a collection of signs and numbers, but vehicles for meaning. This meaning has to be explicit in the object itself.

Practical example: Most word processors offer specific tools to correctly markup mathematical formulae. These do not alter the appearance of formulae in print, and ensure that they can be exported in Mathematical Markup Language (MathML) when producing an e-book. MathML captures both the meaning and the presentation of the formula in a digital format.

XML at the origin of accessible e-book formats

When Extensible Markup Language (XML) tagging is used in the very early stages of the production process, the creation of accessible e-books is greatly assisted as pages are built upon structured and semantic text.

1. The DIAGRAM Center Website, particularly the page "Top Tips for Creating Accessible EPUB 3 Files" has been an invaluable source for this section [<http://www.diagramcenter.org/standards-and-practices/54-9-tips-for-creating-accessible-epub-3-files.html>]

2. Universal and standard e-book format edited by IDPF and supported by DAISY consortium in its version 3.

For archiving purpose, an XML output of the final product is mandatory. At this stage, pagination and page breaks should be preserved so that they are identifiable by assistive technologies used by print-disabled readers. Particular attention should also be paid to international character sets which must use the Unicode standard for character coding. Ensuring assets have the correct markup before they are archived allows for long term asset reusability.

E-book production can then be automated as XML is converted to HyperText Markup Language (HTML) using the semantic tagging described in the previous section. This will ensure the resulting e-book is as accessible as possible.

So, why are these basic principles not being followed?

The principle of separating content from presentation and adding structure and semantic markup to give sense to content has been taught for many years in graduate and professional training programs. Editors have been repeatedly shown how to use the advanced functionality on word processors, how to tag content, and the advantages and practical applications of XML. However, both established editors and newcomers to the profession perpetrate misuse and there is little take up of good practice.

There are several reasons for this:

- Attention is focused on the print publication as the end goal
- Editors have a very short turnaround time from delivery to publication
- There is little awareness of e-Accessibility requirements
- Specifications on the production of accessible e-books are scarce

If the last shortcoming has found a solid solution in the form of EPUB 3, developed in consultation with the DAISY consortium, the other issues – all rooted in day-to-day business practices in publishing houses – still need particular attention.

A marked need for e-Accessibility skills

Inadequate training is also at the source of this limited take-up of best practice. More often than not, technical courses on the editing tools considered above focus on how rather than why we should be using these tools. Students should not only be looking at how to build a dynamic table of content but why a dynamic table of content is important. Not only how navigation can be explicitly built on a document's structure but why explicit navigation is essential.

There is undoubtedly a need for a Copernican revolution in training. Each word processing course should start with an accessibility test so that attendees are familiar with the barriers that can make content inaccessible.

Learning Points

- There is a direct correlation between accessibility needs and best practice in publishing.
- Publishing professionals already have readily available tools integrated in their everyday word processing software.
- Addressing accessibility needs in training programs will not only ensure that e-books are accessible to readers with print disabilities, but it will ultimately benefit both digital and print production and facilitate content repurposing.

Business needs for e-Accessibility skills

e-Accessibility as a Transferable Skill in Production Teams

Thanks to many years of concerted effort by the W3C's Web Accessibility Initiative and others, building in accessibility need not be more expensive or time-consuming. Instead, it is primarily a question of skill. Many skills associated with e-Accessibility can be mapped to tasks that are valued by everyone. To achieve full accessibility, top-level guidance has to be matched by commitment and skill in production teams across the organization.



By Gerald Schmidt, Senior Platform Manager at Pearson Education

Gerald Schmidt is specialized in implementing accessibility in e-production. Gerald has worked in educational publishing for many years, first at ProQuest in Cambridge and then at the Open University in Milton

Keynes before joining Pearson Education in London in 2011.

Many educational service providers have made accessibility a key component of their mission. What is more, there is no lack of passion driving them to meet these goals. This raises the question of what is stopping us making progress in this area more quickly. One line of inquiry takes us higher up still to the legislative framework in which service providers operate. Here are three short excerpts from consecutive pieces of disability legislation in the United Kingdom (emphasis added):

Duty of providers of services to make adjustments

*Where a provider of services has a practice, policy or procedure which makes it impossible or unreasonably difficult for disabled persons to make use of a service which he provides, or is prepared to provide, to other members of the public, it is his duty **to take such steps as it is reasonable, in all the circumstances of the case, for him to have to take** in order to change that practice, policy or procedure so that it no longer has that effect.*

Disability Discrimination Act, 1995

*Each responsible body **must take such steps as it is reasonable for it to have to take** to ensure that [...] disabled persons are not placed at a substantial disadvantage in comparison with persons who are not disabled.*

Special Educational Needs and Disability Act, 2001

Duty to make adjustments

*The first requirement is a requirement, where a provision, criterion or practice of A's puts a disabled person at a substantial disadvantage in relation to a relevant matter in comparison with persons who are not disabled, to **take such steps as it is reasonable to have to take** to avoid the disadvantage.*

Equality Act, 2010

In each case, the legal guidance is far from clear and decisive, making the word 'reasonable' carry a huge amount of weight. The lack of clarity and meaningful change creates a drag factor at all levels of an organization. What is more, the emphasis on 'making adjustments' to an existing service places accessibility in competition with other top level priorities

(e.g. embracing mobile) in unhelpful ways.

One response is to say that whatever the merits of 'reasonableness' as a measure, the idea of 'adjustment' itself is leading us down the wrong path. That response would be to say that we need to create services differently, not fix what we have created. This creates an opportunity for transformation from the bottom up, and it shines a spotlight on the value of e-Accessibility skills.

Thanks to many years of concerted effort by the W3C's Web Accessibility Initiative and others, accessibility is inextricably bound up with the technologies underpinning the web. By colossal good fortune, app-centric mobile operating systems and the mobile web have only served to strengthen the link with accessibility.

It is of course possible to create inaccessible apps and websites, but building in accessibility need not be more expensive or time-consuming. Instead, it is primarily a question of skill.

In this scenario, production tools become windows on a common set of technologies. The further we immerse ourselves in web technologies and related standards, the less we have to say about how a tool works. Anybody joining an organization should feel that they can apply what they already know. Anybody leaving it should be confident that what they have learned will be relevant to future roles.

At the feature level, many traits associated with e-Accessibility can be mapped to capabilities that are valued by everyone. Reflowable text helps us target screen sizes ranging from phones to laptops to televisions; web typography with adjustable font sizes shines on displays with high pixel densities; contrast settings double as a convenient night mode; media overlays offer an elegant solution for synchronized audio and text highlighting; figure descriptions take us half-way to audiobooks for commuters and headphone learning; the 'web in a box' approach exemplified by EPUB 3 is well suited to offline delivery; and so on.

If we drill down to the underlying technologies, progressive enhancement helps production teams disentangle content (HTML) from presentation (CSS) and behavior (JavaScript). The Accessible Rich Internet Applications suite (WAI-ARIA) encapsulates the most challenging of the three (behavior) in such a way that reading systems can target specific users and scenarios. Finally and most importantly, six years from the launch of iPhone OS,

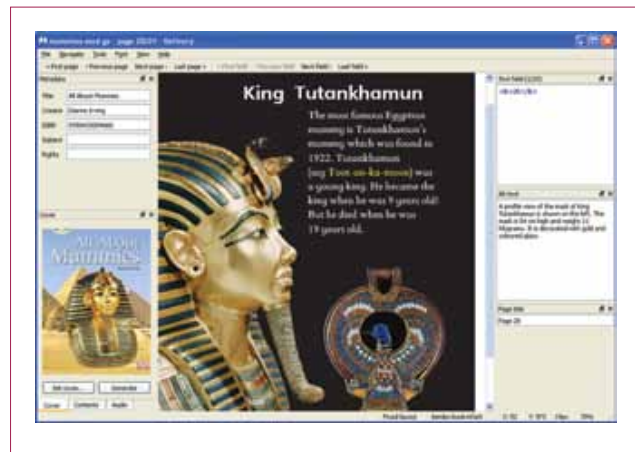


Figure 1: Screenshot of a typical EPUB production tool. The page shown in the center is an HTML page using web fonts and exact placement. Note the metadata panel top left, which shows the main Dublin Core fields used to build an EPUB title. The top left shows the current text fields (which displays the page number in bold) and also a separate field for alt text that describes the mask shown on the left of the page. A tabbed control bottom left gives access to the EPUB cover, the table of contents and the audio files that form the media overlay.

browsers supporting the full range of accessible web technologies form an integral part of all mobile platforms.

As we map skills to production tasks, one thing is immediately apparent, which is the rising importance of open standards and web technologies in everyday production tasks. In many cases, in-house software has shrunk to a thin application layer on top of open source tools and open standards such as EPUB. The abundance of free and robust utilities is enabling a much greater degree of automation, allowing production staff to concentrate on tasks requiring and rewarding close engagement.

The plan for the official three-hour training session for the tool is indicative of the extent to which open standards have supplanted proprietary standards and conventions. The opening fifteen minutes are devoted to EPUB; another fifteen to XML, HTML and CSS; then web fonts are given fifteen minutes, as are general accessibility considerations (e.g. reading order, conventions for figure descriptions). Hands-on practice with the

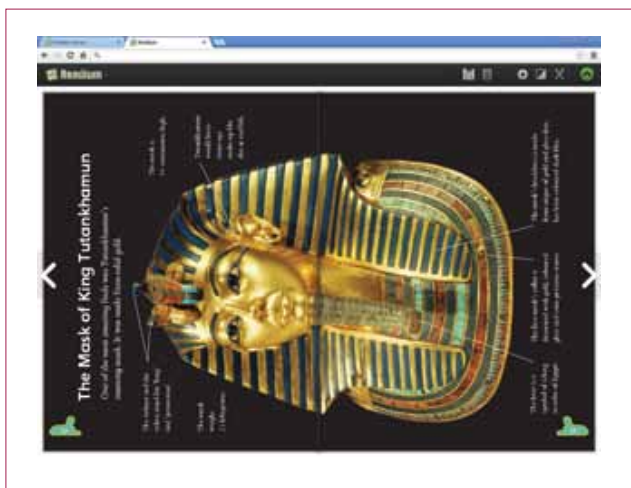


Figure 2: Previewing EPUB titles in progress in Radium, the EPUB reader developed by the IDPF.

tool takes up one and a half hours in total and the session closes with a half-hour question and answer session.

Rapid adoption of e-Accessibility skills hold out the promise of achieving access for everyone from the bottom up. Web technologies enable production teams to produce highly accessible learning experiences without spending more time or buying more expensive tools. In a highly serendipitous sequence of events, app-centric mobile platforms and the mobile web have helped rather than hindered this work. Accessibility rules and conventions no longer have to be defined at the process level; teams can go straight to the W3C's web accessibility guidelines. The shared goal has to be that accessibility is built in first time, so that there is no need to go back and make costly adjustments later. The skills involved can and should be transferable: to achieve full accessibility, top-level guidance has to be matched by commitment and skill in production teams across the organization.

Learning Points

- Three successive attempts to legislate against disability discrimination in the UK have placed huge weight on the far from decisive expression 'reasonable adjustment'.
- Arguably the emphasis on 'adjustment' has led us down the wrong path: we need to create content in such a way that it is accessible from the beginning.
- We need to adjust not what we make, but how we make it, and learning to do so requires e-Accessibility skills.
- Tools become windows on a common set of web technologies, underpinned by open standards and transferable skills.

Business needs for e-Accessibility skills

What should tomorrow's transcription professional look like?

To meet the needs and expectations of today's readers, transcription centers like the Centre Technique Régional pour la Déficience Visuelle in the Rhône-Alpes region of France must ensure their teams are equipped with the necessary skills, including a solid training in digital publishing software and processes.



By Nicolas Eglin, Director of CTRDV

Nicolas Eglin is the director of a regional resource center in the Rhône-Alpes area of France. He also coordinates the care and support regional network for the visually impaired (SARADV) which brings together medical and social services for over 450

visually impaired young people aged 0-20 years in the Rhône-Alpes area. He graduated from Sciences-Po in Paris, and specialized in communication and management related to disability policy.

The CTRDV and its mission

The Centre Technique Régional pour la Déficience Visuelle (CTR DV - regional technical center for visual impairment) is a regional center of health resources³, which produces adaptations of books and textbooks for visually impaired students aged 6 to 20 in the Rhône-Alpes region⁴. The books are adapted by professionals equipped with word processing software, Optical Character Recognition (OCR) programs, image editing software for the preparation of tactile drawings and specialized software for Braille embossing. The CTRDV adds all reusable diagrams and images to a database that is made available to other transcription centers.

Transcription service

The CTRDV supports around 480 blind or visually impaired children enrolled in a variety of primary and secondary school courses. It primarily adapts textbooks, but also books for the workplace and for extra-curricular reading. Most books are characterized by a high text-image ratio and relatively complex layouts.

The process of adapting books involves:

- Converting documents into digital formats if the publisher has not provided digital files⁵;
- Tagging the structure and the content of the book;
- Replacing any illustrations with tactile drawings, simplified drawings or alternative texts;
- Producing Braille or large-print versions.

Transcription professionals

Transcription professionals come from a number of backgrounds, including the humanities, the sciences and visual communication. There is no precise data on the number of transcription professionals in France but it can be estimated that there are approximately 200 people working in the 70 recognized transcriptions centers across the country.

Transcription professionals must demonstrate the following skills:

- The ability to understand the nature and purpose of a document
- The capacity to analyze the abilities and disabilities of the person for whom the document is intended
- Knowledge of Braille and large print techniques
- A knowledge of graphic design and typesetting
- Familiarity with the processes and standards of the publishing industry

³. <http://www.ctrdv.fr>

⁴. Rhône-Alpes is located in the east of France and has a population of over 6 million

⁵. Since 2010, French publishers have a legal obligation to provide digital files to recognized transcription organizations.

Training in France is organized by the Fédération nationale pour l'insertion des personnes sourdes et des personnes aveugles en France (FISAF)⁶, which runs a 13-week training course, with a three-week work placement in a transcription center. The course is open to any candidate educated to degree level (BAC +3) with a mastery of Braille. It is also open to candidates with two years of university education and at least one year's experience working in a transcription center.

The transcription process

Each student requires between 8 and 12 different textbooks per school year. Because of the inclusive nature of education and the academic freedom teachers have to choose their textbooks, it is very rare that any two students ask for the same book. The average visually impaired high school student requires over 3000 text book pages – between 4500-5000 pages once adapted – including around 2500-3000 illustrations. Many textbooks are outdated after three to four years which means that there is little chance that an adapted textbook can be used by more than one visually impaired student.

Transcription centers vary significantly in the way they run their services. Some services develop “specializations” within the team (including a Braille specialist, a large print specialist, an audio file specialist, etc.), while others rely on the versatility of the whole unit. For those centers supporting school adaptations, a transcriber may be assigned to a number of children throughout the school year. Homogeneity is achieved through standardized procedures following national guidelines.

The production process is as follows:

1. The center receives an order from a teacher for an adapted book. This is assigned to a transcriber who will follow the order from beginning to end.
2. The transcriber checks various internal and external databases to see whether an adapted version already exists.
3. If the document has an International Standard Book Number (ISBN), the transcriber requests the source file from the publisher via Platon⁷. If necessary, OCR software is used to scan the book.
4. The transcriber adapts as appropriate, using Duxbury translation software for Braille, Adobe Illustrator for easy to read images and tactile drawings, and Microsoft Word or Adobe InDesign for large print books.
5. The document is exported as a digital file (txt, rtf or pdf mainly; rarely Daisy) or printed in Braille depending on the order, and sent to the client.

It is difficult to automate any of these steps, particularly when it comes to complex documents such as textbooks or instructional sequences. Time spent for the production of a page varies greatly according to its complexity.

Challenges for the future

To meet the needs and expectations of today's students, transcription centers must ensure their professionals are equipped with the necessary skills.

There are four key activities that should be prioritized in order to achieve this:

1. **Sharing catalogues between transcription centers**
Electronic document management facilitates the sharing, cataloging and distribution of adapted books. Working in partnership with other centers encourages the wide-spread adoption of best practice. In addition to using the same transcription conventions, especially for tactile drawings, educators and transcription professionals can share experiences around the use of Braille to different levels of complexity depending on the abilities of pupils.
2. **Developing the distribution of e-books for the print-disabled**
There is a growing demand for digital files for visual or audio playback on various devices. Files need to be compatible with different platforms while meeting the needs of rights holders in terms of file security. A transcription professional must have the relevant technical skills in digital media to respond to this demand.
3. **Developing skills traditionally associated with the publishing professional**
When the publisher provides the source files⁸, providing the transcription professional has the necessary training, it is possible to change fonts, font sizes, line spacing and color contrast. The overall layout can be modified by moving text and image blocks and inserting links to the original source images. Vector techniques allow resizing without losing quality, and layers can be used to change a picture to suit the specific needs of a particular reader. All of these techniques allow the necessary adjustments to be made in a timely and cost-effective manner.
4. **Creating partnerships between transcription services and publishers**

Current publishing workflows are geared towards print production rather than content production. However, the use of standardized digital formats and style sheets will result in the production of documents that are adaptable to multiple audiences, including the print-disabled. Incorporating a transcription professional into mainstream book production workflows would ensure the constraints and limitations associated with the reading experience of visually-impaired readers are taken into account from the outset and result in a better reading experience for all. This would lead to great savings across the board: not only would publishers save time in the production of digital versions of their books, but they would increase business by reaching new audiences.

Learning Points

- More and more students read scholarly and extra-scholarly material in digital formats. To meet the expectations of these readers, transcription professionals must have a solid training in digital publishing software and processes.
- The standardization of digital file formats provided by publishers will enable transcription centers to increase efficiency and output.
- Encouraging publishers to employ transcription professionals would ensure that the needs of visually-impaired readers are taken into account at source and result in a better reading experience for all.
- Transcription centers must pool their skills and share their catalogues.

⁶ see http://www.fisaf.asso.fr/images/documents_formation_2013/PLAQUETTE_TRANSCRIPTEURS_2013_2016.pdf

⁷ The PLATON platform is the official depository for digital files hosted by the Bibliothèque Nationale Française (the French national library). Approved bodies can request a book in digital format from publishers via the platform.

⁸ These are often QuarkXPress or Adobe InDesign files

e-Accessibility Education, Training and Outreach

What is important is in the curriculum

In order to ensure that e-Accessibility and e-inclusion become integral to our technology-rich society, students need to be given the necessary training as a matter of urgency. Collective effort must be made across the world to ensure that mainstream and specialized curricula provide current and future professionals with the necessary e-Accessibility know-how, tools and support to encourage people with disabilities to take full advantage of Assistive Technologies (AT) and accessible Information and Communication Technology (ICT).



By Klaus Miesenberger, Johannes Kepler University Linz, Institute Integriert Studieren

Klaus Miesenberger is Deputy Head of the Integriert Studieren Institute at the University of Linz, Austria. He is responsible for Research and Development (R&D) and teaching at the institute which also runs a service centre for students with disabilities. In 2001 he was given a professorship in Human-Computer Interaction (HCI) with a focus on HCI for People with Disabilities. His research and teaching work is related to IT based Assistive Technologies, e-Accessibility and Design for All. Klaus acts as the managing director of National Contact Point for EDeAN (European Design for All e-Accessibility Network) and was previously President of the Association for the Advancement of Assistive Technology in Europe (AAATE).

The Latin word 'curriculum' outlines what young people have to 'run through' to become mature adults in society. A second interpretation of 'currere', at the origin of the word 'curriculum', is that people 'run together' and try to influence what is included in education, because this is what gains or maintains importance in society. Erich Weniger is one of many experts who interpret 'curricula as the result of a fight of pressure groups on the mind set of young people'⁹.

Mainstream curricula can therefore be interpreted as the societal consensus on what is of importance, merits attention and is considered to be a key skill in professional life. Mainstream curricula frame the awareness, the thinking and the skills of the next generation, and contribute to our conception of society. Our ambitions for society must therefore be integral to curricula. This is underlined by the fact that across the world, stakeholder groups both monitor and give weight to curriculum development. This makes curricula a stable and stabilizing phenomenon in society. Education is therefore to some extent grounded on biased or contradictory principles; on the one hand it aims to emancipate the learner so that he/she can develop to reach his/her full potential, and on the other hand it imposes and internalizes existing structures, roles and institutional settings.

⁹ Erich Weniger: *Ausgewählte Schriften zur geisteswissenschaftlichen Pädagogik*, Weinheim 1975, p. 199-294

The ICT revolution, globalization and internationalization are transforming established structures and accelerating societal changes. They also offer a pretext to redress the importance, endurance and resistance of the existing consensus and of national or regional curricula. Despite this, there still appears to be resistance towards obvious developments like e-Accessibility and e-inclusion of persons with disabilities. On the one hand, almost everybody agrees that we should give persons with disabilities the tools they need to be independent, self-determined and 'included'. On the other hand, society expects to maintain the very structures, mind sets, roles and organisations which prevent persons with disabilities from taking full advantage of Assistive Technologies and accessible Information and Communication Technology. In order to exploit their full potential as accessible and inclusive tools, change is needed, but, as always, change is met with resistance, both from within the sector itself and in society as a whole.

However, there have been a number of changes that should bring e-Accessibility and e-inclusion to the fore, including:

- Changing awareness towards the inclusion of persons with disabilities;
- The move from a medical model towards a social-constructivist understanding of disability;
- A solid legal framework, from the United Nations Convention on the Rights of Persons with Disabilities to plans for a European Union Antidiscrimination Act and national legislation;
- Evidence of the business, social and economic impact of e-Accessibility.

But when analyzing existing curricula, we learn that the move from separation towards inclusion is not yet reflected. This holds true for mainstream learning, but also for many specialized sectors such as special education, therapy and care. Still dominated by a very traditional understanding of disability, they seem to ignore e-Accessibility and e-Inclusion, or relegate them to side topics.

The often outlined lack of awareness and skill in implementing accessibility, and in particular in ICT environments, is to a large extent due to the fact that e-Accessibility is missing from both specialized and mainstream curricula. To rectify this situation, an initiative is proposed which would:

- identify and study existing examples of specialized curricula on e-Accessibility;
- investigate the uptake of e-Accessibility in specific curricula in the disability service, care and support sectors;
- investigate the uptake of e-Accessibility in mainstream curricula;
- compare and analyze existing examples of e-Accessibility training and propose how to influence and update the objectives, target groups, skill sets, course content and societal effects of such courses;
- work on model or reference curricula for e-Accessibility and specific e-Accessibility modules which can be seamlessly integrated into mainstream and specialized curricula.

As e-Accessibility is seen as a basic requirement based on a fundamental human right, such an analysis should look at curricula at all levels from primary education to graduate, professional and life-long learning courses. The universality of the need to implement e-Accessibility is apparent when considering target groups. All people need to be aware of e-Accessibility and adopt a social understanding of disability, but specific attention should be paid to those who are responsible for its implementation:

- Our own sector – e-Accessibility as a core topic in the education of care and service professionals
- Policy and administration professionals
- Managers
- Hard and software designers
- Engineers
- Content authors

It is expected that such an initiative would provide materials for a political discussion supporting the implementation of the UN Convention and its practical take-up. If e-Accessibility becomes a compulsory subject across multiple curricula, a strong impact can be expected.

Being represented in curricula would also result in an increased demand for training opportunities and learning materials. The current model of pushing e-Accessibility know-how, tools and support could make way for a 'demand' model – which would constitute an important step for e-Accessibility business.

The above analysis of existing curricula and materials should allow us to define a first extensible set of subjects which could serve as a model for updating curricula and providing basic materials. This may include:

- The principles of e-Accessibility, the potential of ATs, ICTs, the standardized Human-Computer Interface (HCI) and the need for e-Inclusion legislation.
- Who the users are, how they work with ICTs, ATs and HCIs and what skills they gain when e-Accessibility and their needs are respected.
- Guidelines and standards such as W3C/WAI and ISO standards, on how to implement e-Accessibility in systems and services.
- Techniques and tools for implementing e-Accessibility.
- e-Accessibility Engineering: How to best integrate cost-effective e-Accessibility into design, development and engineering processes.
- Design and usability: how to incorporate e-Accessibility into the well-established domains of design and usability.
- Management: examples, best practices, resistance, opposition and how to steer a change management process.

Organizations across the world have identified the need for a much broader collective effort in analyzing existing mainstream and specialized e-Accessibility curricula and their impact. For instance, the EU co-funded network eAccess+¹⁰ has started a small initiative on collecting information on existing curricula which could serve as a first basis for comparative studies.

The effective implementation of the UN Convention on the Rights of Persons with Disabilities will require the uptake of cross-sector e-Accessibility and e-Inclusion training as a matter of urgency.

Learning Points

- e-Accessibility training needs to be part of mainstream education, from primary upwards, if it is to become an integral part of our ICT-rich landscape.
- With the UN Convention on the Rights of Persons with Disabilities, the need for cross-sector e-Accessibility and e-Inclusion training is a matter of both national and international importance.
- Collective effort must be made across the world to ensure that e-Accessibility is given its rightful place in both specialized and mainstream curricula.

¹⁰ www.eaccessplus.eu

e-Accessibility Education, Training and Outreach

Case Study: Design for All and Design for Diversity at Middlesex University

The Design for All Research Group, based at the University of Middlesex in London, raises awareness around e-Accessibility among policy makers, professionals, academics and researchers, and supports the education and training of ICT professionals and e-Accessibility experts. The Group has been exploring different teaching models, and the specialized e-Accessibility course at Middlesex has evolved from a taught Masters to a Work-Based Learning Postgraduate Certificate which appears better matched to the needs of both students and employers looking to develop Digital Inclusion in the workplace.



By Gill Whitney, Design for All Research Group, Middlesex University

Gill Whitney is Principal Lecturer in Computer and communications engineering at the University of Middlesex. She is an acknowledged expert in the field of Digital Systems with particular knowledge of the standardization, legislation, training and technical factors needed to support the creation of useable, useful and fun technology. She is Head of the Design for All Research Group which carries out multidisciplinary research work in the area of digital and social inclusion.

The teaching of Design for All or Design for Diversity or Universal Design to students and professionals at Middlesex University, carried out by the members of the Design for All Research Group, is on-going, and has included both success and failure. The Design for All Research Group was set up to utilize current and new high-quality research theories and methodologies to enable all people, including older people and persons with disabilities, to be e-Included and participate in the electronic knowledge revolution. The results of our research are used to influence policy makers, professionals, academics and researchers. The group also works to educate students and professionals and to disseminate accessibility knowledge. This role has two elements: firstly to ensure that as many as possible Information and Communication (ICT) students are made aware of the complete range of possible end-users of ICT systems, and secondly to support the education and training of e-Accessibility champions or experts.

Providing Information and Communication students with a grounding in e-Accessibility

The teaching of mainstream ICT students has been most successful. As an enthusiastic expert, I have been invited into classes for students on a range of ICT courses. I have spoken, for one or two weeks, to students studying Networking, Information Technology, Computer Science, Business Information Systems, Computer Forensics and other programs. These students are given a brief introduction to the social model, to the requirements of people with sensory, physical and cognitive impairments, to the effects of the ageing population, and most importantly to the ways in which technology can be designed to be accessible. These introductory sessions are designed to raise awareness and to enable students to go on into their professional lives with the knowledge that persons with disabilities exist in the mainstream and wish to make use of mainstream technology.

I am not alone in being invited in to share knowledge in this way, and know of colleagues at Middlesex and many other universities in the United Kingdom, Europe and worldwide who act as advocates of the needs of non-standard potential users of mainstream technology. Discussions are currently on-going with a number of international colleagues who work in this area to enable us to distribute our introductory material to a wider audience and to increase the percentage of ICT students and future ICT professionals who experience an insight into how to design accessible, useable and fun products and systems.

Training e-Accessibility champions and experts

Three years ago, Middlesex University launched an MSc in Digital Inclusion. This course was based on teaching materials produced under the DfA@eInclusion project. This project was an EU Framework Programme for Research and Technological Development (FP6) Coordination Action, with partners who were Design for All experts based in 22 different European countries. The course was designed to meet the needs of e-Accessibility or Design for All champions or experts who could take the knowledge they gained, and the contacts they made, back to their workplace to further enhance their work. The course attracted good publicity in the accessibility field; experts in the area offered to talk for free and it was nominated by the British Standards Institute for the 2011 International Standard Organization (ISO) Award for Higher Education in Standardization.

Unfortunately, after two runs, the course was forced to close due to insufficient recruitment among students; the cost and the commitment required from the students were too much. Students appeared unwilling to invest the required amount on a course in a non-traditional field which was not seen to increase job opportunities.

From MSc to Postgraduate Certificate

Although the MSc in Digital Inclusion has closed, Middlesex University still receives requests from potential students in this area. For this reason, we have decided to launch a Postgraduate Certificate entitled Professional Practice in Design for Diversity in Information and Communication Technology¹¹. In 1996, Middlesex University won a Queen's Anniversary Prize for Higher and Further Education for its development in Work-Based Learning Studies, and in 2005, the Higher Education Funding Council for England designated Middlesex University as a Centre for Excellence in Teaching and Learning in Work-Based Learning.

The Professional Practice in Design for Diversity in Information and Communication Technology course is shorter and cheaper than the MSc in Digital Inclusion and, because it is a work-based learning course, is more directly linked to a student's employment. This work-based learning course has been designed to enable Digital Inclusion champions and experts to meet their education needs and to offer benefits to both students and employers.

The modules on the Postgraduate Certificate will highlight the gap between people with effective access to digital and information technology, and those with very limited or no access at all. Reference is included to the imbalance in physical access, resources and technical skills. The students will study three modules:

- Design for All Context - Human Rights
- Design For All Research Principles and Best Practice
- A Negotiated Work-Based Project

The learning, teaching and assessment strategies employed in this course will make use of a full range of accessible and useable distance learning techniques including tutor-led individual and group workshops, presentations, discussions, action learning groups, one-to-one academic support and guidance, and the use of module handbooks and other learning resources available through the University's virtual learning environment.

After taking the course, students will have up-to-date knowledge and skills to enable them to:

- Critically apply the basic principles of Design for All regarding ICT products and services and reflect on their importance;
- Demonstrate a critical understanding of the ethical context;
- Select and critically evaluate current theoretical perspectives;
- Work with and for people with disabilities;
- Demonstrate how the development of projects/inquiries is designed to make changes to a student's work/practice;
- Analyze and utilize relevant national, European and international legislation, standards and guidelines.

Work-Based Learning describes learning while a person is employed. The learning is based on the needs of the individual's career and employer. We believe that this course will also enable the students to benefit the disabled end-users of the ICT products and systems they work on.

Learning Points

- It is important to raise awareness around e-Accessibility among mainstream ICT students so that they go on into their professional lives with a knowledge that persons with disabilities exist in the mainstream and wish to make use of mainstream technology.
- Taught Masters are perhaps not the best learning model for e-Accessibility; students appeared unwilling to invest in the specialized MSc course in Digital Inclusion as this was deemed a non-traditional field with limited job opportunities.
- Middlesex hopes that a Work-Based Learning Postgraduate Certificate – based on a learning model that the university has a proven track record in – will meet the needs of both students and employers looking to develop Digital Inclusion skills in the workplace.

¹¹. More information about the course can be found at http://www.mdx.ac.uk/courses/postgraduate/Diversity_information_Communication_Technology.aspx

e-Accessibility Education, Training and Outreach

Developing Accessibility Awareness and Training for Publishers

EDItEUR provides guidance and training for publishers to provide accessible content for print-impaired readers. Beyond following EDItEUR's online training modules and guidelines, there are a number of things that publishers can do straight away to improve the accessibility of their in-house workflow and digital content.



By Sarah Hilderley, EDItEUR

Sarah Hilderley has worked in publishing for many years, most recently as Production Director at HarperCollins Publishers. She has taken the lead in EDItEUR's involvement in The Enabling Technologies Framework - a project funded by The

World Intellectual Property Organization. This three-year global project has developed a worldwide standard of best practices for publishers, helping them ensure full accessibility to their digital material for the print-impaired.

The creation of accessible e-content relies on the collaboration and understanding of the publishing supply chain to enrich the user experience for all readers. EDItEUR is dedicated to helping the publishing community understand that 'accessible publishing' is indeed inclusive and, in fact, 'better publishing'.

Developing awareness in this area throughout our industry is vital to our success, and EDItEUR's involvement in The Enabling Technologies Framework has given us the opportunity to assist with this development. EDItEUR is an international standards body coordinating the development of the standards infrastructure for electronic commerce in the book, e-book and serials sectors. As an acknowledged leader in global standards for the exchange of bibliographic information and of e-commerce messages in the book and journal supply chains, EDItEUR is also engaged in shaping key national and international projects.

The Enabling Technologies Framework Project is funded by WIPO, the World Intellectual Property Organization, under its visually-impaired persons' initiative to facilitate access to copyrighted works for people with print impairment. EDItEUR is jointly delivering this project in collaboration with the DAISY Consortium, and during this time our greatest efforts have been based on providing guidance and training for publishers in their quest to provide accessible content for print impaired readers.

Two years ago, EDItEUR launched *Accessible Publishing, Best Practice Guidelines for Publishers*. This straightforward document explains how publishers can tackle both the organizational and technical aspects of accessibility. This is a manual, not a report, and gives detailed guidance to the various areas of the internal supply chain together with some 'How to' sections which enable the publisher to get started. In addition, there is a very detailed 'Further Resources' section which guides the publisher to further areas of interest. Other sections in the guidelines focus on 'What is an accessible product?' and 'How to conduct an accessibility audit' - both vital for any publishing business and for setting up an accessible workflow in-house.

The guidelines are available in six languages – English, French, Italian, Spanish, German and Japanese – in a variety of different formats for the reader to access. Version 4 was published in June 2013 to coincide with the DAISY conference in Copenhagen and includes many updates, particularly with the emergence of the publishing format EPUB 3. EPUB 3 offers the publisher an opportunity to publish accessible mainstream content, for the first time giving print-impaired readers the same access to content at the same time and at the same price as everyone else. It offers many of the accessibility features of the DAISY standard but within a mainstream option. We urge publishers to consider this format and to make use of the accessibility features available.

To complement the guidelines, EDI€EUR has developed a series of open source learning objects which can be accessed in-house and which last approximately 15 minutes per session. These are designed entirely for the beginner and cover a variety of topics such as An Introduction to Print Impairment, Accessible Formats, Metadata, EPUB 3 and Accessible images. These have been developed in close collaboration with colleagues from JISC TechDis, the UK advisory service on technologies for inclusion, and with other advisory organizations. They offer the publishing community a quick and easy way to understand the challenges of accessible publishing, and how beneficial it can be for everyone. Sometimes, understanding is all that is required for a difference to be made.

If publishers are wondering what they can do immediately, there are a number of things that can be done straight away to improve the accessibility of in-house workflows and digital content:

- Show a company commitment to accessibility by formalizing it as part of a company policy. This sends a clear message out to all employees about accessibility as a major priority for the company.
- Appoint an advocate who will become the spokesperson for all matters relating to accessibility, the conduit for the flow of information between all departments and a contact point for external suppliers and customers.
- Make use of metadata to describe the accessible features of e-content so that print-impaired readers will be able to discover accessible e-books. EDI€EUR, as part of their maintenance work for the ONIX for Books Metadata Standard, has developed a series of 14 codes that describe accessible features. Codelist 196 has been developed with the idea that accessibility is not an on/off switch, but rather a set of granular requirements which depend on the various needs of the user.

Learning Points

- Accessible publishing is better publishing – it enriches the user experience for all readers.
- Collaboration throughout the industry supply chain is vital.
- Publishers should make use of EDI€EUR's *Accessible Publishing, Best Practice Guidelines for Publishers*¹², and short open source training modules¹³.
- Publishers should make use of the opportunity that EPUB 3 offers – the opportunity to publish accessible content within a mainstream format.

¹². <http://www.editeur.org/109/Enabling-Technologies-Framework-Guidelines/>

¹³. <http://www.editeur.org/137/Enabling-Technologies-Framework-Training-for-Publishers/>

Models for fostering national and international cooperation

AccessiWeb - The Story of a Community of Web Accessibility Experts

The AccessiWeb Working Group (GTA) is where web professionals come to acquire, develop and test their skills in e-Accessibility and make collective efforts to advance e-Accessibility in France. The business model and working methods have proved successful and the GTA has demonstrated its effectiveness in the dissemination of standards and best practices.



by Denis Boulay, Head of AccessiWeb, BrailleNet

Denis Boulay is head of AccessiWeb, BrailleNet's Web Accessibility service. Since 2009, he has worked to update and develop AccessiWeb criteria for certifying compliance with WCAG and RGAA standards. He works with the most competent experts in the field to ensure the quality of the AccessiWeb certification process. He also leads a professional community of over 400 web accessibility specialists.

The Accessiweb Working Group (GTA) is an active community of 470 professionals from both the public and the private sector. It brings together project managers, ergonomists, graphic designers, and other ICT professionals, all of whom are qualified "AccessiWeb Experts in Evaluation (EAE)"¹⁴. It is coordinated and supported by BrailleNet, a non-profit organization.

The GTA: Meeting an emerging need for an e-Accessibility profession

The GTA was created in 2003, but its origins date back to 1999. At the time, e-Accessibility was little-known. Public bodies had no legal obligation to ensure their digital output was accessible to people with disabilities and e-Accessibility professionals were few and far between.

BrailleNet was one of the sole organizations to be recognized as an authority in the field. In 1999, following the publication of WCAG 0.1 and a circular from the Prime Minister encouraging the application of these standards by public service providers, a real need for information, clarification, advice and control emerged. Without the necessary guidance, expertise, professional advocacy and operational frameworks, it was feared that this standard, like many more before it, would have little real-world impact.

In order to focus efforts and avoid misinterpretation, BrailleNet responded by creating the AccessiWeb manual, a series of training courses and a certification process. Representatives from the public and private sector who passed the AccessiWeb course to become "Experts in Evaluation" were invited to join the GTA with the goal of collectively nurturing and promoting e-Accessibility standards in France.

The GTA's role in structuring the e-Accessibility profession

By the mid-2000s, BrailleNet had grown in importance and experience, and was instrumental in structuring the profession. The GTA developed in parallel, and by 2007 there were over 200 members. The AccessiWeb manual evolved to take feedback into account from its members but also from outside sources, and to adapt to changes in the technological and legal landscape.

¹⁴ a professional course run by BrailleNet Association since 2000

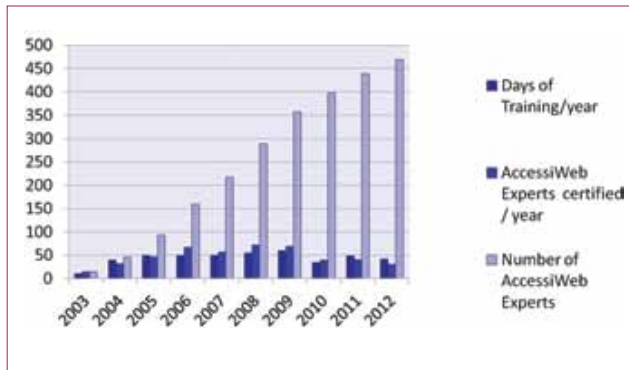


Figure 1: AccessiWeb Evaluation Experts trained by BrailleNet between 2003 and 2012

Core activities of the GTA

The GTA shares a common understanding of accessibility and makes collective efforts to take the profession forwards on the basis of different projects. Key activities include:

- organizing seminars;
- translating W3C standards into French;
- creating technical manuals;
- developing methodological tools;
- leading technical discussions.

The GTA is where web professionals come to acquire, develop and test their skills in e-Accessibility. The GTA mailing list and technical seminars enable members to meet, share and participate in community service projects aimed at advancing accessibility in France.

The GTA Business Model

Association BrailleNet, responsible for coordinating the group, is both an independent and non-profit organization. It is funded through the following channels:

- Income through training and certification services
- Support from public institutions at both a national and European level
- Sponsorship from private companies, such as Alcatel-Lucent France, in lieu of their duty to employ disabled staff

Members of the GTA pay a small subscription fee and give their time on a voluntary basis.

This model and its working methods have proved successful. Association BrailleNet has fostered a direct relationship with standardization bodies and works closely with industry stakeholders. The GTA has demonstrated its effectiveness in the dissemination of standards and best practices while lending credibility to e-Accessibility.

The future of the GTA

With the evolution of technology, languages, devices and practices, the need for e-Accessibility expertise is growing. The arrival of HTML 5 and WAI/ARIA brings with it the need for detailed compliance testing methodologies, implementation frameworks and practical tools. The GTA must ensure it develops professionally to meet these demands.

To do this, the GTA must participate in:

- The creation of a technical knowledge database for e-Accessibility;
- The development of a professional certification scheme for organizations, processes, products and services;
- The creation of innovative projects, particularly around the methodological aspects of deploying accessibility in IT projects;
- A collective response to the establishment of standards and technical papers on new languages, technologies, devices and practices, particularly in relation to mobile interfaces;
- Ongoing work carried out in collaboration with the W3C's Web Accessibility Initiative.

Learning Points

- Without the necessary guidance, expertise, professional advocacy and operational frameworks, standards have little real-world impact.
- The GTA encourages ICT Professionals to work together to nurture and promote e-Accessibility standards both in their workplaces and on the national and international arena.
- The GTA has developed an effective business model which fosters a strong collaborative relationship between international standardization bodies and representatives from the public and private sectors in France
- ITC professionals must take the necessary steps to ensure their e-Accessibility skills develop in parallel with new languages, technologies, devices and practices.

Models for fostering national and international cooperation

Mind the Digital Gap – It’s Bigger than We Think

Whilst we need to educate the widest possible audience, we must also strive to make inclusion and e-Accessibility a professionally recognized function. By coming together as a united force for inclusion, we can have a far bigger impact in transforming the lives of tens of millions of people across Europe.



By Nigel Lewis, CEO AbilityNet

Nigel Lewis is CEO of AbilityNet, the UK’s leading charity on e-Accessibility. AbilityNet has over 25 years’ experience in providing advice, guidance, assessment and consultancy in accessible ICT to all those in need whether at work, in education or at

home. Nigel is also Chair of the One Voice for Accessible ICT Coalition, and Vice President of the International Association of Accessibility Professionals. Through his career, Nigel has gained a comprehensive knowledge of IT and the implementation of major IT systems but also the management of business.

We all know how digital technologies support and help the disabled and elderly, whether this is living lives, learning or in employment. So why is it so many technologies, services and content are not accessible and we the accessibility industry can’t make more headway?

The simple answer is too few know, understand or appreciate how to make technology, goods and services inclusive. Worryingly, some don’t even care and don’t appreciate the business benefits that they would get if more people could use and buy their goods and services.

Many of us have for years tried to address this apathy to digital inclusion. We all had some successes, convincing some of the enlightened, encouraging others to be inclusive, but overall, we have made limited inroads across organizations, let alone the millions of individuals creating content, apps, etc.

There has been much research and many conferences and workshops across the world exalting the need for and benefits of inclusive technology content and services. Yet, we are still in this position of too few knowing and understanding the need and benefits.

So why is this? There are numerous reasons, but there are two clear areas that we, the accessibility community, could address to make a huge step forward to make inclusion mainstream.

Messaging

All of us working in digital inclusion often do so in our own microcosms, often because we have to generate funds to keep our organizations going. This leads us to be parochial and focused on a narrow agenda.

We therefore present digital inclusion, what it means and how you deliver it in our own way to best meet the needs of our own organization and end beneficiaries. However, this creates a confused and disjointed landscape which allows governments, commercial and third sector organizations off the hook, as they can say “well, there is no clear direction, meaning, understanding etc., so we don’t know who to listen to”.

All of us working in the digital inclusion field must come together and create a clear message of need, issue and solution. If we can all agree on the same simple message, then we can start to make a real impact in getting that message across.

I equate digital inclusion in its journey to where global warming was 20 to 30 years ago. Over the years and through the consistent delivery of message, all of us have the basic understanding of what global warming is and how it's caused. But ask people to describe what digital inclusion is, why it's needed, how to deliver it, and you will get many varying answers.

So what if we had a conference or summit to work out the message of what it means, what language we should use and we all signed a pledge to use those messages going forward? We could then truly speak with one voice to the world, and stop people and organizations from using the excuse that there is no consistent message or understanding.

Would it be tough to agree? Well, yes it would, but the benefit of hundreds of organizations and tens of thousands of accessibility professionals preaching the same message around the world would make a huge difference to people's understanding of the inclusive agenda.

Professionalism

Within our industry, just about anyone can call themselves an accessibility professional or consultant, and look for business professing to be an expert. There are, of course, a large number of great experts; however, there are also plenty who are neither experts nor passionate; how do you tell them apart?

Track record, and/or curriculum vitae, is one way, but I'm sure we have all experienced that a résumé and reality can be somewhat different, and if you are an organization who wishes to buy in expertise, you want to know you are making the right investment.

Again, we have another excuse for organizations to shirk their responsibility as "accessibility is too difficult as we don't know whom to trust".

The answer is we need to professionalize the accessibility community, here in the UK, across Europe and around the world. We need to make accessibility as much a part of professional IT as we would design, security, architecture, etc.

But let us not fall into the trap of thinking that accessibility and inclusion is some niche item that only falls to the web designer. No, we must ensure that all those who are involved in the delivery of digital understand and appreciate the need for, importance of and the benefits of building in inclusivity.

So we require a two-pronged attack. Firstly, we need to make sure that all those involved in the digital creation, from marketing, finance, human resources, business management, procurement etc., all have the level of understanding needed to ensure that what is conceived from the outset is inclusive. We can do this by reaching out to the existing communities and professionalisms that already exist, and working with them to embed the appropriate inclusive awareness into their existing education programs. For example, there is the Skills Framework for the Information Age¹⁵ which sets out the skills and competencies required across the range of IT resources. If we could add inclusion as a base competency across the entire range, then all those involved in the creation, procurement and delivery of digital systems and content would know of the need for inclusion from the outset.

The second area we need to tackle is the creation of an accessibility profession. I suggest we look to the new organization being created: the International Association of Accessibility Professionals (IAAP) which has as one of its aims the creation of a professional framework and certification process for those working in the inclusion field. Whilst it is still early days, its mission is to create an accessibility profession, with consistency and standards across the globe.

The IAAP will officially be launched at the International Technology and Persons with Disabilities Conference (CSUN) conference in March 2014. It can achieve its laudable mission if we all engage, so I would implore accessibility professionals to join the IAAP and take this opportunity to help build a profession around the accessibility community. If we do this we will again remove yet another excuse from those unwilling to deliver content, services and systems that are usable by everyone.

Learning Points

- If we can get a message that works, that is consistent and repeatable and that we are all willing to use, we will be far more powerful in getting that message across and getting people to sit up and take notice.
- If we professionalize the industry, we will also take it from a niche, inconsistent black art into a mainstream professional service.
- More awareness and professionalism will mean more work for all of us working in this field.
- Ultimately, coming together as a united force will result in more accessible systems for those who need them most.

¹⁵ See <http://www.sfia-online.org/>

Models for fostering national and international cooperation

International Association of Accessibility Professionals (IAAP)

Creating a global community of experts to grow accessibility from niche to mainstream value



By Rob Sinclair, Chief Accessibility Officer at Microsoft and President of the IAAP Board of Directors

Robert Sinclair is Chief Accessibility Officer at Microsoft, responsible for the company's worldwide strategy to develop software and services that make it easier for people of all ages and abilities to see, hear, and use their computers. He believes that addressing the needs of people with a wide range of abilities is the key to transforming and improving the way everyone interacts with our increasingly digital world.

Overview of the Challenge

During the past 25 years, a great number of advancements have been made towards the goal of more accessible Information and communications technology (ICT). This includes advancements in operating systems, developer tools, technical industry standards, and the growth of a rich ecosystem of Assistive Technology products. However, as we reflect on the current state of the industry and today's ICT solutions, websites and content, it is clear that most are not accessible. Even organizations that have established best practices for authoring and development are struggling to consistently deliver accessible content and solutions.

Corporations, government agencies, and educational institutions worldwide continue to work diligently to understand and respond to the needs of their employees and customers with disabilities, but significant obstacles continue to hinder their success. After several years of discussing these challenges with engineering teams, companies and governments around the world, we have identified some commonly-cited obstacles:

1. It is difficult to keep up with the constant pace of technology change and innovation.
2. There is not a broadly agreed upon understanding of what it means for technology to be "accessible" nor is there sufficient guidance regarding how to make it accessible.
3. Organizations are struggling to understand how to effectively procure accessible technology and integrate it with their internal systems and infrastructure to meet the needs of disabled or aging employees and customers.
4. It is difficult to recruit personnel with expertise in accessibility because there is no established way to assess an individual's knowledge and experience in this field.
5. It is difficult for individuals working in the field of accessibility to maintain their expertise and remain well-informed of new laws, standards, and best practices.

Our research¹⁶ indicates that many individuals in the engineering community who are responsible for implementing accessibility (e.g., designers, developers, quality assurance professionals) have limited knowledge of accessibility and are struggling to satisfy design, engineering and testing requirements. There is a passionate group of dedicated practitioners around the world who work tirelessly in pursuit of accessibility, but their own knowledge is largely self-taught. This informal and unstructured approach results in conflicting recommendations and educational materials. It perpetuates the belief that accessibility is highly complex and ambiguous.

¹⁶. ATIA/AIA Developer's Survey on Accessibility (see <http://www.atia.org/i4a/pages/index.cfm?pageid=3918>)

Therefore, it has not gained widespread acceptance within the broader ICT community and is often described as an art form rather than a science. Today, there are few people capable of creating an accessibility masterpiece and many people who have tried and failed – becoming overwhelmed and frustrated by the complexity and ambiguity of requirements.

Elements of the Solution

Accessibility is a multifaceted challenge that requires technology, assessment, education and more. The solution to such a diverse problem space must be crafted carefully and holistically. There are many groups that must be involved in the design of accessible technology, the delivery of accessible content, and the growth of a workforce and marketplace that values accessibility.

The reality is that today most of the necessary technology and tools already exist in some form, but they are not being appropriately utilized to produce accessible devices, applications, content, etc. Without these building blocks, it is difficult to establish inclusive workplaces, marketplaces and societies. The one root cause seems to be that most people do not understand accessibility – what it is, why it is important, how to achieve it, and that the pursuit of accessibility actually benefits everyone (not only persons with a disability). Therefore, to achieve inclusion, we must expand the number of business leaders, designers, engineers, software developers, educators, rehabilitation professionals, etc. who understand accessibility.

We also recognize that technology does, and will continue to, play a fundamental role in shaping the accessibility of the increasingly digitally connected world around us. Therefore, we need programs to significantly increase the number of software and device developers around the world who possess the necessary knowledge and tools to design, develop and deliver accessible solutions; we must make it easy for anyone to author documents, graphics, videos, and other content that are accessible for everyone; and we need a globally harmonized approach to accessibility.

Industry and government leaders have been struggling to find a solution to these problems for many years. Therefore, in 2011 we conducted a year-long study (with significant support from the U.S. Department of Labor – Office of Disability Employment Policy, ODEP¹⁷) which revealed that developers want formal training and certification. The study led us to conclude that a formal accessibility profession is needed.

Forming an Accessibility Profession

Based on this research and years of dialogue with accessibility experts around the world, a group of more than twenty companies and organizations from five countries have come together to form the International Association of Accessibility Professionals (IAAP).

The IAAP will provide strategic leadership, international perspective, operational focus and sustained investments to transform accessibility from today's grass roots effort into an internationally respected and recognized profession. Its primary objectives are to:

- Create a globally recognized set of educational and training materials related to accessibility – likely organized in separate courses, or learning tracks, for business leaders, designers, developers, etc.;
- Develop and administer one or more professional accessibility certifications, and offer continuing education to help individuals maintain their expertise as the field evolves;
- Partner with other organizations to create a connected global community and elevate awareness of complementary local and regional activities that have benefitted accessibility;
- Provide opportunities for accessibility professionals around the world to share information, provide peer support, and easily track accessibility-related developments in technology, public policy, and technical standards.

Current Activities

The IAAP's Board of Directors launched the organization in early 2014 and is beginning to organize educational events and collaboration opportunities for its target members. In addition, the group has been drafting plans for training and curriculum so it can begin comparing that framework against existing trainings and courseware. The goal of this work is to identify gaps and begin funding work to address them in the coming months and years.

This is an exciting time for accessibility – a time when we all come together to transform accessibility into a globally coordinated pursuit of digital inclusion. This will enable existing advocacy and support organizations to broaden their reach and help companies build accessible information communication technologies more easily and predictably.

On behalf of the IAAP, we hope you will join us in this historic endeavor¹⁸.

Learning Points

- While many organizations strive to deliver inclusive products and services, significant obstacles continue to hinder their success.
- The informal and unstructured nature of the e-Accessibility profession has resulted in conflicting recommendations and the belief that accessibility is highly complex and ambiguous.
- e-Accessibility is multifaceted and requires business leaders, designers, engineers, software developers, educators, rehabilitation professionals, etc. to work together to cultivate the necessary knowledge and tools to design, develop and deliver accessible solutions.
- The IAAP aims to provide strategic leadership, international perspective, operational focus and sustained investments to transform e-Accessibility from today's grass roots effort into an internationally respected and recognized profession.

¹⁷ Task Force Recommendations and Case Studies (see <http://www.atia.org/i4a/pages/index.cfm?pageid=4238>)illion

¹⁸ The association has created a temporary website (www.accessibilityassociation.org) to host basic information while the full website is developed. It is also offering periodic updates and news via email. To sign up to receive this information, send mail to info@accessibilityassociation.org

Models for fostering national and international cooperation

Community Collaboration through W3C WAI: Working Together on Web Accessibility

The W3C Web Accessibility Initiative (WAI) provides an established international, multi-stakeholder forum with flexibility to develop new material and refine existing material to meet a broad range of web accessibility professional development goals.



By Shawn Lawton Henry, W3C Web Accessibility Initiative

Shawn Henry leads World Wide Web Consortium education and outreach promoting web accessibility for people with disabilities, and holds a research appointment at the Massachusetts Institute of Technology (MIT) Computer Science and Artificial Intelligence Laboratory. Prior to joining the W3C Web Accessibility Initiative, she consulted with various organizations to optimize user interface design for usability and accessibility.

W3C WAI Web Standards: The Cornerstone of Web Accessibility

The World Wide Web Consortium (W3C) is an international web community that develops the foundational standards for the Web — HTML, CSS, etc. — as well as guidance such as the Mobile Web Applications Best Practices¹⁹. W3C was established by Sir Tim Berners-Lee, who invented the World Wide Web and who continues as the W3C Director.

Within W3C, the Web Accessibility Initiative (WAI) develops strategies, guidelines, and resources to help make the Web accessible to people with disabilities, including older people with age-related impairments. W3C WAI guidelines are recognized internationally as the standard for web accessibility. W3C's web standards include accessibility guidelines that cover the essential components of web accessibility²⁰: Web Content Accessibility Guidelines (WCAG)²¹, which is also ISO/IEC 40500²²; User Agent Accessibility Guidelines (UAAG)²³; and Authoring Tool Accessibility Guidelines (ATAG)²⁴. WCAG 2.0 W3C's web standards also include technical specifications that address accessibility, for example: Accessible Rich Internet Applications (WAI-ARIA)²⁵ and Independent User Interface (IndieUI)²⁶.

Along with these standards, WAI provides material that explains how they apply in different situations, for example: Developing Websites for Older People: How Web Content Accessibility Guidelines (WCAG) 2.0 Applies²⁷; Guidance on Applying WCAG 2.0 to Non-Web Information and Communications Technologies (WCAG2ICT)²⁸; and Mobile Accessibility²⁹.

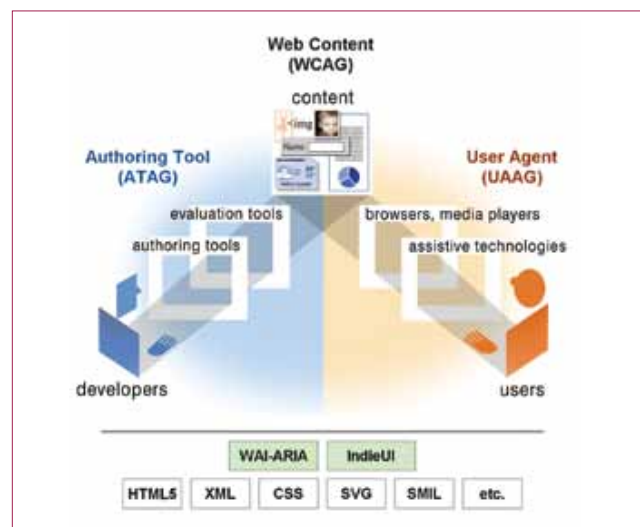


Figure 1: W3C web standards include accessibility guidelines and technical specifications.

¹⁹ Mobile Web Applications Best Practices: <http://www.w3.org/TR/mwapp/>

²⁰ Essential Components of Web Accessibility: <http://www.w3.org/WAI/intro/components>

²¹ WCAG Overview: <http://www.w3.org/WAI/intro/wcag>

²² WCAG 2.0 is now also ISO/IEC 40500: http://www.w3.org/QA/2012/10/wcag_20_is_now_also_isoiec_405

²³ UAAG Overview: <http://www.w3.org/WAI/intro/uaag>

²⁴ ATAG Overview: <http://www.w3.org/WAI/intro/atag>

²⁵ WAI-ARIA Overview: <http://www.w3.org/WAI/intro/aria>

²⁶ IndieUI Overview: <http://www.w3.org/WAI/intro/indieui>

²⁷ Developing Websites for Older People: How WCAG 2.0 Applies: <http://www.w3.org/WAI/older-users/developing>

²⁸ WCAG2ICT: <http://www.w3.org/WAI/intro/wcag2ict>

²⁹ Mobile Accessibility: <http://www.w3.org/WAI/mobile/>

Education, Training, and Support Material for Skills Development

While a core aspect of WAI's work is developing accessibility guidelines and technical specifications as web standards, WAI also develops resources to support web accessibility education and outreach. These activities result in a wide range of resources — from training material to design guidance to evaluation resources — for developing the web accessibility skills of e-Accessibility professionals.

WAI provides extensive supporting material along with the guidelines and specifications, such as Understanding WCAG 2.0³⁰, Techniques for WCAG 2.0³¹, and WAI-ARIA support material³². Other types of material address different audiences, for example, resources on managing accessibility³³, the business case for web accessibility³⁴, and conformance evaluation (WCAG-EM)³⁵. Resources that directly support educators and trainers include:

- Developing Web Accessibility Presentations and Training³⁶
- Before and After Demonstration (BAD)³⁷

While many WAI resources address advanced aspects of web accessibility, more recent resources are targeted for beginners, such as:

- Accessibility Principles in How People with Disabilities Use the Web³⁸
- Easy Checks: A First Review of Web Accessibility³⁹

WAI has recently defined new projects to more directly support web accessibility skills development. For example, upcoming work includes:

- Developing Tutorials⁴⁰ for self-learning as well as education and training environments, which will provide detailed guidance on specific aspects of accessible web design and development, including basic topics such as images and tables, and advanced topics such as carousels and sliders;
- Improving the usefulness and usability of WAI supporting material for designers, developers, evaluators, and managers.

WAI welcomes participation in this new work, as well as collaboration on different resources to support web accessibility professional development.

W3C WAI Opportunities for Community Collaboration

For more than 15 years, W3C WAI has brought together individuals and organizations from around the world with a broad range of perspectives, including:

- Developers, designers, project managers, policy makers, researchers, advocates, and web users with disabilities;
- Industry, education, government, research, and disability organizations.

These diverse perspectives come together to develop accessibility solutions through a documented W3C Process designed to develop consensus and ensure broad community participation in standards development. A lighter, agile process is used for developing WAI supporting resources more quickly, while still fostering consensus and community collaboration. New opportunities to participate in WAI work provide flexibility for the community to actively collaborate on materials through different venues.

Most WAI work takes place through Working Groups⁴¹ and specific Task Forces⁴². Participation in Working Groups requires individuals to commit time each week. Opportunities for people to contribute to WAI work⁴³ with less time commitment include: reviewing draft documents, which are announced in e-mail, Twitter, RSS feeds, and web pages⁴⁴; participating in the WAI Interest Group (IG)⁴⁵ mailing list; and translating WAI documents⁴⁶.

Recently W3C has expanded opportunities to contribute more actively to WAI work with a less specific commitment, including:

- WAI-Engage W3C Community Group⁴⁷ allows anyone to contribute through a wiki. It is an open environment with some topics started and the opportunity to define new topics of interest.
- Web Platform Docs⁴⁸ seeks to provide a comprehensive, authoritative source for web developer documentation. It is also open for anyone to contribute through a wiki.

These existing and new participation options provide opportunities for individuals and organizations to contribute in different ways to developing web accessibility support material through W3C WAI.

Future Work on Web Accessibility Skills Development

W3C WAI encourages participation in developing the next generation of web accessibility education, training, and support material. Developing material through W3C WAI provides benefits including:

- Direct collaboration with the Working Groups that are developing the web standards and implementation support materials;
- An established Education and Outreach Working Group (EOWG)⁴⁹ with a core of existing participants and opportunities for new participants;
- A flexible process for developing material and gathering community input from a broad range of stakeholders through publicly-available drafts;
- Existing networks for disseminating material and encouraging translations.

Given W3C WAI's preeminent position in the field, there are many advantages to working through WAI for future efforts to provide material for web accessibility professional skills development.

Learning Points

- W3C Web Accessibility Initiative (WAI) provides an established infrastructure for developing high-quality, well-vetted material for developing web accessibility professionals.
- WAI is an open international community for collaboration among individuals and organizations with a broad range of perspectives, including developers, designers, project managers, policy makers, researchers, advocates, and web users with disabilities — from industry, education, government, research, and disability organizations.
- New opportunities for participating in W3C WAI provide flexibility for individuals and organizations to collaborate on web accessibility material to support professional skills development.
- WAI drafts and final materials are available for free on the Web.

30. Understanding WCAG 2.0: <http://www.w3.org/TR/UNDERSTANDING-WCAG20/>

31. Techniques for WCAG 2.0: <http://www.w3.org/TR/WCAG20-TECHS/>

32. The WAI-ARIA Documents section at <http://www.w3.org/WAI/intro/aria#is>

33. Planning and Implementing Web Accessibility: <http://www.w3.org/WAI/managing>

34. Business Case: <http://www.w3.org/WAI/bcase/>

35. Website Accessibility Conformance Evaluation Methodology (WCAG-EM) Overview: <http://www.w3.org/WAI/eval/conformance>

36. Developing training: <http://www.w3.org/WAI/training/>

37. BAD: <http://www.w3.org/WAI/demos/bad/>

38. Accessibility Principles: <http://www.w3.org/WAI/intro/people-use-web/principles>

39. Easy Checks: <http://www.w3.org/WAI/eval/preliminary>

40. Tutorials: <http://www.w3.org/WAI/tutorials>

41. WAI Groups: <http://www.w3.org/WAI/groups>

42. WAI Group Task Forces: <http://www.w3.org/WAI/group/tf.html>

43. Participating in WAI: <http://www.w3.org/WAI/participation>

44. Getting WAI announcements: <http://www.w3.org/WAI/about/announcements>

45. WAI IG: <http://www.w3.org/WAI/IG/>

46. Translating WAI Documents: <http://www.w3.org/WAI/translation>

47. WAI-Engage: <http://www.w3.org/community/wai-engage/>

48. Web Platform Docs: docs.webplatform.org

49. Education & Outreach Working Group (EOWG): <http://www.w3.org/WAI/EO/>

Conclusion

The United Nations' Convention on the Rights of Persons with Disabilities, European policies and national legislation provide a stable basis for building accessibility into our increasingly digitally connected world. This regulation is supported by the W3C's Web Accessibility Initiative and DAISY Consortium which provide organizations with practical guidance on how to make their online services, applications and e-books accessible to all.

However, to achieve full accessibility, this top-level guidance must be matched by commitment and skill in the workplace. For this to happen, collaboration and understanding of the entire supply chain, from educators through to employers, is paramount.

Firstly, e-Accessibility training needs to be part of mainstream education, from primary through to post-graduate and professional training courses. Digital content professionals recognize the direct correlation between accessibility needs and best practice across industry, so it comes as no surprise that the skills associated with e-Accessibility are valued by everyone and must be nurtured at the earliest opportunity.

Industry leaders must then ensure that e-Accessibility professionals are embedded in the overall strategy and processes of their organizations, and continue to receive the necessary training and support to deploy e-Accessibility effectively. This is the key to developing accessible products and services, and subsequently driving competitiveness, edge and growth.

Finally, e-Accessibility professionals must come together as a united force for inclusion and send a clear message to all. By strengthening collaborative relationships with international standardization bodies and representatives from the public and private sector, practitioners can help take e-Accessibility from an informal and unstructured profession to a mainstream service with a significant real-world impact.

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