

ANTON BOLFING

## WEB-ACCESSIBILITY AND INCLUSION IN SWITZERLAND CHANCES AND HOW TO GET THERE



- 
- «Access for all»
    - Who We Are
    - ICT-Accessibility [disambiguation]
  - The Swiss Accessibility Study 2016
    - Focal Points
    - Results
    - Learnings
  - Our Contribution and Current Projects
    - In-depth ICT-Accessibility Consultancy
    - The Accessibility Developer Guide
    - Promotion of Accessible Learning Materials in Swiss Education System

## «Access for all» / «Zugang für alle»

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- Established in 2000
- Foundations Mission: Advancement of ICT-Accessibility
- 9 members of staff
  - About half of which with special needs
- 100% self-financed
- Independence
- Activities
  - Services
  - Research
  - Awareness raising
  - Education



**Zugang für alle  
Accès pour tous  
Accesso per tutti  
Access for all**

## ICT-Accessibility Fields:

- Web-Accessibility (Web Content and Applications)
- Mobile Apps
- Electronic Documents
- Software

## «Access for all» Engages in:

- Accessibility Testing
- Accessibility Consulting
- Accessibility Certification



# ICT-Accessibility    Impairments to deal with I

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- Visual impairment and blindness
- Hearing impairment and deafness
- Motor impairment
- Cognitive und neurological impairments
- Age-related impairments
- Access for all represents all forms of disabilities



- Visual impairments:
  - Insufficient colour contrasts
  - Insufficient scalability
  - No alternatives for visual information
  - Insufficient semantics
  - Insufficient screen reader operability
- Hearing impairments:
  - No alternatives for spoken information
  - Too complex language



- Motor impairments
  - Insufficient keyboard operability (alternative input devices)
  - Insufficient focus visibility
- Cognitive and neurological impairments
  - High user interaction complexity
  - Complex language
  - Wild animations and flashing



# ICT-Accessibility Backed by WCAG 2.0



- Web Content Accessibility Guidelines WCAG 2.0
  - Universal Design (taking into account most types of impairments)
  - Since 2008
  - High level of abstraction and technology-agnostic
- WCAG 2.0 perfectly suitable:
  - Websites
  - Mobile Apps
  - Electronic Documents (PDF, EPUB, MS Office)
- New challenges: Javascript-Widgets
  - WAI-ARIA





- Visual inspection
  - Page titles, Skip links, Sensory Properties
- Accessibility tools support
  - Visible Headings bookmarklet, PDF Accessibility Checker, Colour Contrast Analyser, Web Developer Toolbar, and many more
- Code inspection
  - Browser developer tools



- Screenreader testing
  - Semantics
  - Focusability
  - Focus order
  - Text-Alternatives
- Screenreaders
  - NVDA, JAWS with FF/IE
  - VoiceOver (iOS), Talkback (Android)

**At «Access for all» we strictly test  
against WCAG 2.0**



# Swiss Accessibility Study 2016



- Published October 2016
- In German and French
- Rich Editorial Content
- Test objects:
  - 100 websites in 7 categories
  - 2 x 15 mobile apps (News)
- Testing methods
  - Based on WCAG 2.0 ratings by experts
  - 4-pages samples
  - With screen reader scenarios
- Site results presented as accessibility profiles



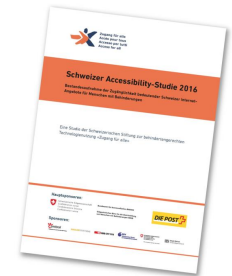
# Swiss Accessibility Study 2016 Editorial Content



- Goals:
  - Raise awareness for ICT-Accessibility
  - Put slight pressure on web content providers
- Editorial Focus:
  - Diversity of affected impairments / special needs
  - Where do ICT affect our daily lives?
  - Vision eInclusion
  - Laws, regulations and standards, CH and abroad



- What if we succeed to tap the full accessibility potential of ICT? Imagine!
- What are the opportunities ICT can contribute to an inclusive world?
- First of all: **Print is not accessible!!** ICT is potentially a good thing for inclusion.
- Fields of inclusion:
  - Social / cultural inclusion
  - Educational inclusion
  - Political inclusion
  - Access to information
  - Job inclusion
  - Autonomy and self-determination



Fields of inclusion	Accessible ICT as opportunities
Social / cultural inclusion	Email, Messenger App, Social Media, Skype, Multimedia content, ...
Educational inclusion	Learning material, electronic books and documents, eLearning platforms, electronic exams, ...
Political inclusion	eGovernment, eVoting
Access to information	News platforms, electronic documents, newsletters, ...
Job inclusion	Accessible software
Autonomy and self-determination	eServices: eVoting, eBanking, Online-shops, ... IoT: Mobile app user interface for all kinds of (household) appliances

# Swiss Accessibility Study 2016 Results I

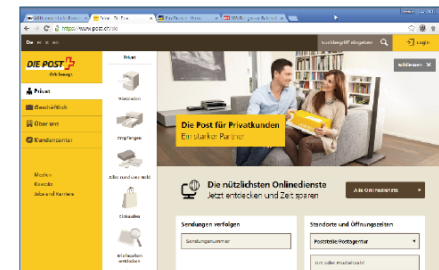


- Results on individual basis with
  - Total score (1 – 5 Stars)
  - Accessibility Profile
  - Szenario Report

Schweizerische Post  
www.post.ch



Szenario: Die Testperson möchte herausfinden, wieviel eine Inland-Sendung eines Pakets bis 5kg kostet, welches am Folgetag zugestellt werden soll.



Erfahrungsbericht Szenario: Post.ch bietet sehr gute Voraussetzungen für Barrierefreiheit. Diese greifen leider nicht immer. Wer die Umleitung auf die barrierefreie Version von «Preis berechnen» verpasst, wird nicht zum Ziel gelangen. Zum Beispiel wenn man die Preisinfo unter «Versenden -> Pakete» sucht.

- Results comparing website categories:



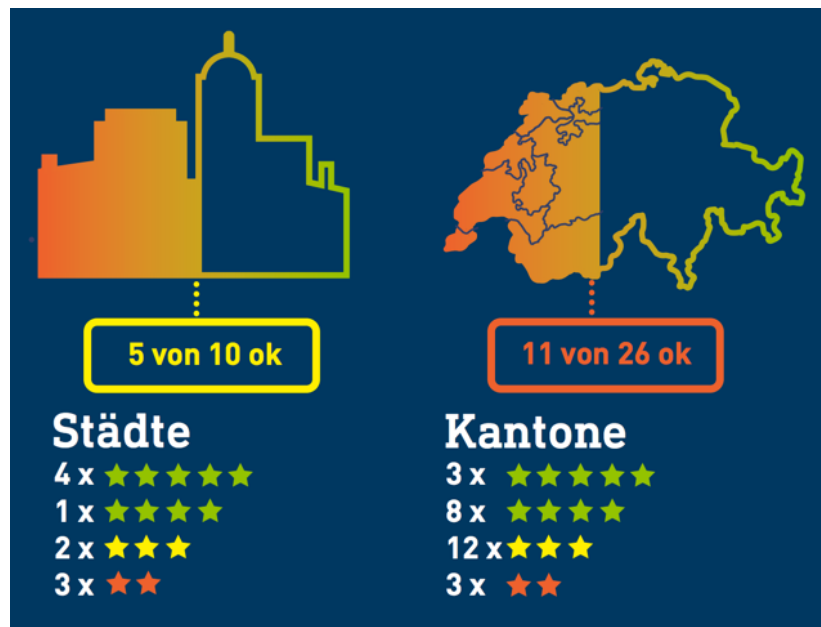
## Winners 2016





# Swiss Accessibility Study 2016 Results II-ii

- Results comparing website categories:



## Middle field 2016

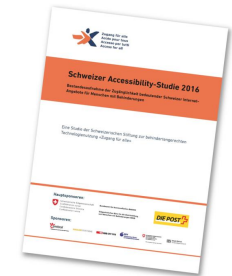


# Swiss Accessibility Study 2016 Results II-iii

- Results comparing website categories:



## Losers 2016



# Swiss Accessibility Study 2016 Learnings [ in short ]

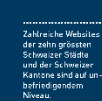
- Devastating accessibility of services @ **private sector**
- Lacking awareness and **know how** @ ICT developers / designers
- **PDFs** are bad for accessibility, very bad

## Zugang für alle

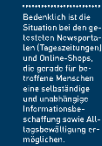
Letztes, unverändertes Dokument – und es gibt noch mehr zum ändern:  
Laden Sie das Dokument herunter, um es anzupassen, oder drucken Sie es aus.  
Drucken Sie das Dokument aus – es ist kostenlos. (Drucken Sie es aus, wenn Sie möchten.)



Webseiten von öffentlichen Institutionen wie Bund und Bundesnahe Betriebe (Post, PostFinance, SBB, SMI, Swisscom) sind relativ gut zugänglich.



Die Auswahl der Websites von Schweizer Hochschulen stimmt wenig zuverlässig, im Bereich Bildung ist Inklusion eher besonders wichtig.



«Zugang für alle», Schweizerische Stiftung zur behindertengerechten Technologienutzung, ist das Kompetenzzentrum für die Überwindung technologischer Schranken.

## The role of «Access for all»: Technical Enabler



TOP-DOWN



- Lobbying
- Legislation
- Politics
- Consulting (Competence Center)

## Boosting Accessibility

BOTTOM-UP



- Enabling (Competence Center)
  - Formation of
    - Developers
    - Project managers
    - Editors / authors

You are here: [ADG](#)

# Welcome to the Accessibility Developer Guide (ADG)

With this pragmatic guide you'll learn how to use a [screenreader](#) in only a few hours. It was **written specifically for web developers** who want to build [accessible websites](#), but it will be useful for anyone else interested in learning a screenreader. It's easy, we promise!

## Why this guide?

For sighted users, **it's not trivial to enter the world of the blind**, where all visual information must be transformed somehow into audio.

My name is [Joshua](#), **I am a sighted web developer**. I'm working for the foundation [Access for all](#), which's goal is to make the internet an accessible place. I already spent a lot of time learning how to create accessible websites, and I want to share my full knowledge with you to make your life as a developer easier.

All the informations and examples in this guide are counter-checked by my **co-workers with special needs** Daniele, Petra, and Gianfranco, who are very experienced accessibility consultants.

## What you will get

Here you'll learn in a very pragmatic way many important things you need to know when creating accessible websites. We'll provide you with **sensible examples** that you can experiment with so you get a profound feeling about what's needed to make a website accessible.

We'll **focus on screenreader usage**, as it covers most of the important topics. Some other tools may be discussed, too.

The guide is written in a **rather technical language**, so good knowledge of HTML, CSS, JavaScript and commonly used browser technologies is assumed.

## Contribute!

This guide is **open source**! Contribute to it by forking it on GitHub.

### Notice: this guide is (and always will be) heavy work in progress!

The web is a quickly evolving place, and so is the topic of accessibility. We are striving to keep this guide up to date and invest a lot of effort into it.

Alas, we are only providing our own opinions here. They are based on profound experience with the topic as both developers and users. They may not always be the "best" solutions in every situation, and certainly they are not the only solutions available. But we are sure they'll prove helpful in most cases.

So we don't claim this guide to be based on any "hard, scientific facts". Please keep this in mind while reading our guide.



**Finally online**

June 12th 2015



**Number of Users**

9

# Current «Access for all» projects for a better world

## Boosting awareness and know-how in the developer community I



Accessibility Dev. Guide

Background ▾Environment ▾Knowledge ▾Examples ▾About ▾

Sign upSign in ▾

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Accessibility Developer Guide: Accessibility For Experts

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## Current «Access for all» projects for a better world

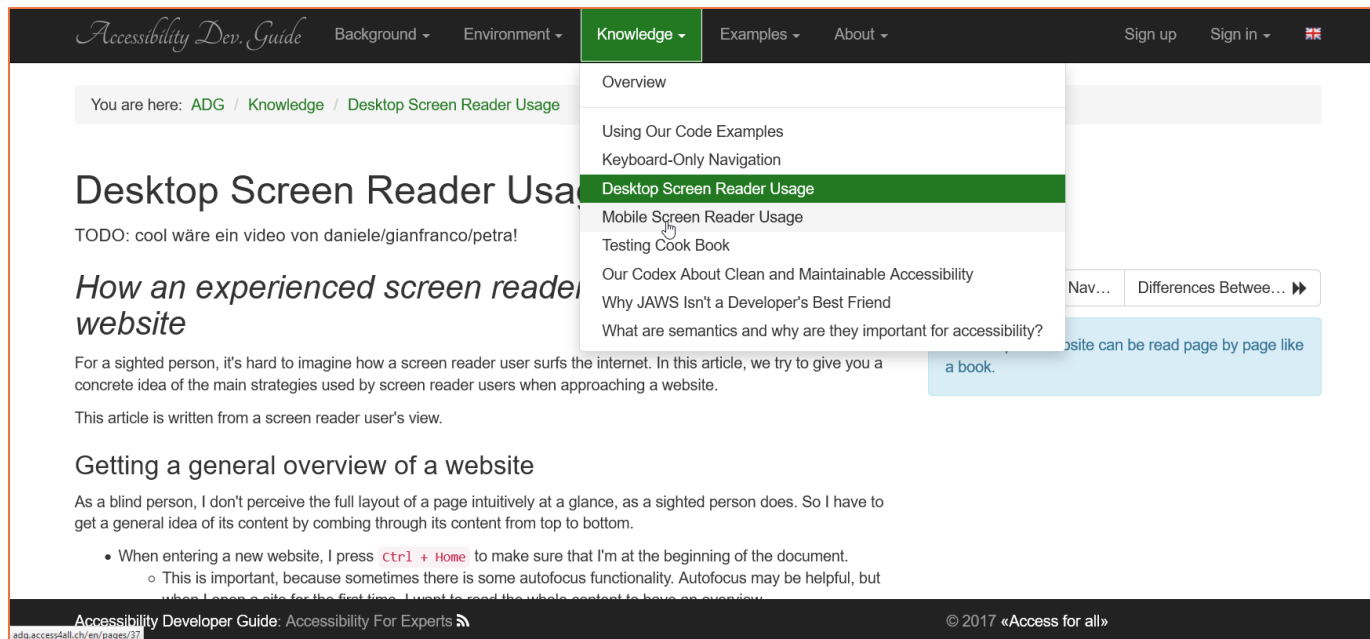
Boosting awareness and know-how in the developer community I

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### Accessibility Developer Guide ADG

- [Open] accessible web platform offering
  - the foundations total knowledge regarding
    - Understanding WCAG 2.0
    - How To Test web accessibility
    - How To Implement web accessibility
- Goal: Empower web developers to autonomously develop accessible websites



The screenshot shows the Accessibility Developer Guide (ADG) website. The navigation bar at the top includes links for 'Background', 'Environment', 'Knowledge', 'Examples', and 'About'. The 'Knowledge' menu is open, displaying a list of topics: 'Overview', 'Using Our Code Examples', 'Keyboard-Only Navigation', 'Desktop Screen Reader Usage' (highlighted), 'Mobile Screen Reader Usage', 'Testing Cook Book', 'Our Codex About Clean and Maintainable Accessibility', 'Why JAWS Isn't a Developer's Best Friend', and 'What are semantics and why are they important for accessibility?'. The main content area shows the 'Desktop Screen Reader Usage' article, which begins with a note about a video and a paragraph about the difficulty of imagining screen reader user experience. A list of bullet points follows, starting with 'When entering a new website, I press Ctrl + Home to make sure that I'm at the beginning of the document.'

Accessibility Dev. Guide Background Environment Knowledge Examples About Sign up Sign in

You are here: ADG / Knowledge / Desktop Screen Reader Usage

## Desktop Screen Reader Usage

TODO: cool wäre ein video von danielle/gianfranco/petra!

### How an experienced screen reader user approaches a website

For a sighted person, it's hard to imagine how a screen reader user surfs the internet. In this article, we try to give you a concrete idea of the main strategies used by screen reader users when approaching a website.

This article is written from a screen reader user's view.

### Getting a general overview of a website

As a blind person, I don't perceive the full layout of a page intuitively at a glance, as a sighted person does. So I have to get a general idea of its content by combing through its content from top to bottom.

- When entering a new website, I press **Ctrl + Home** to make sure that I'm at the beginning of the document.
  - This is important, because sometimes there is some autofocus functionality. Autofocus may be helpful, but when I access a site for the first time, I want to read the whole content to have an overview.

adg.access4all.ch/en/pages/37

© 2017 «Access for all»



# Accessibility Developer Guide ADG II

## Tablist: Proof of concept

This is a little proof for the concept of tablists (tabs). It only exists to show how accessible tabs should behave.

ARIA roles and states were relinquished wherever possible, as they seem to be supported to different degrees by common browsers and screenreaders. So to prevent unforeseeable problems, only plain ol' HTML and basic JavaScript was used.

Features:

- Gives proper feedback to screenreaders (in fact, screenreaders just see radio buttons as tablist controls)
- Hides collapsed contents effectively from everybody
- Where functionality may not be obvious to screenreader users, small hints are given (only visible to screenreaders):
  - The tablist's main heading has "tablist" appended
  - A small help text explains how the tablist works
  - The controls are named "tablist controls"
  - Each control is named "Show tabpanel XY"
  - Each panel's heading has "slide" appended
- The controls are focused before any other content

This page displays tablists.

Bla bla bla and a link.

Play around  
with this code on  
[Codepen.io](#)

rose

tulip

sunflower

### Some info about rose

Bla bla bla... all about rose...

A beautiful rose


A link to a page with more infos about rose!

### More elements can come here related to rose

Maybe even some form element where you can enter a name for your rose:

# Accessiblity Developer Guide ADG III



 **Proof of concept: Tablist**  
A PEN BY Joshua Muhelm

Fork

Settings

Change View

Log In

Sign Up

HTML (Slim)

```
1 This page displays tablists.
2
3 <p>
4   | Bla bla bla and
5   | a href="#" a link
6   | .
7
8 - tablists = {flowers: [:rose, :tulip, :sunflower]}
9 /* tablists[:animals] = [:dog, :cat, :tiger, :snake]
10
11 - tablists.each do |name, panels|
12   - tablist_id = "tablist_#{name}"
13
14   .tablist
15     h1.sr-only #{name} (tablist)
```

CSS (Sass)

```
1 body
2   padding: 20px
3
4 .tablist
5   border: 1px solid black
6   padding: 10px
7   margin-bottom: 20px
8   background-color: #fff7cf
9
10 .control
11   display: inline-block
12
13   label
14     border: 1px solid black
15     margin: 0 0 -1px 0
```

JS (CoffeeScript)

```
1 $(document).ready ->
2   $("input[type='radio']").change ->
3     $current_radiobutton = $(0)
4     current_radiobutton_name = $current_radiobutton.attr 'name'
5     current_panel_id =
6       "#{$current_radiobutton.attr('value')}_panel"
7
8   $("[name='#{$current_radiobutton_name}']").each (i, element)
9     =>
10       $radiobutton = $(element)
11       panel_id = "#{$radiobutton.attr('id')}_panel"
12       $panel = $(panel_id)
13
14       if panel_id == current_panel_id
15         $panel.show()
```

This page displays tablists.

Bla bla bla and a link

rose tulip sunflower

Some info about rose

Bla bla bla... all about rose...

A beautiful rose

A link to a page with [more infos about rose!](#)

More elements can come here related to rose

Maybe even some form element where you can enter a name for your rose:

Console

Assets

Comments

Shortcuts

Share

Export

Embed

## Current «Access for all» projects for a better world

### Boosting awareness and know-how in the developer community II

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## Strengthen Public Training Offers

- Modular accessibility training for
  - Different levels of prior knowledge (basic, advanced, professional, [hackthons for nerds])
  - Different roles in web development process (developers, designers, content editors/authors project managers, decision makers)
- Training duration: 4-8 hours
- All modules with participation of accessibility experts with disabilities
- Close interaction with ADG

# Current «Access for all» projects for a better world

## Electronic documents

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- The web is full of inaccessible PDFs ( 90% (?) of el. docs in PDF-format )
- Making PDF-documents accessible is
  - very difficult and
  - very time-consuming
- «Access for all» often to suggests to relinquish publication of PDF documents
- **EPUB3 to the rescue?**
  - «Access for all» is campaigning for the establishment of EPUB as the one main stream electronic document format to replace PDF

## EPUB 3 in short



- EPUB (and its proprietary derivatives) is the main stream document format for belletristic ebooks already (ebook readers such as tolino, kindle, iBooks, ...)
- EPUB 3 is the next gen of EPUB based on the Open Web Platform technologies
- EPUB 3 is developed with «accessibility in mind»
- EPUB 3 is non-proprietary
  
- EPUB 3 is basically zipped HTML/CSS/JS content
- EPUB 3 is distributable web content

## EPUB 3 back to our Vision eInclusion:

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- Publications always come (among others) as accessible electronic documents
- First priority: **educational material** (EPUB for Education Profile)
  - + expanded structural semantics
  - + metadata
- Inclusion of publishing industry
- Possible approach:
  - **Single source publishing:**

# Stiftung «Zugang für alle» / «Access for all» Foundation

## STAY TUNED

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- ❖ ICT BEARS A **HUGE POTENTIAL** FOR INCLUSION
- ❖ MISSED OPPORTUNITIES RESULT IN INCREASING EXCLUSION
- ❖ STILL A LONG WAY TO GO - **STAY TUNED**

**THANK YOU VERY MUCH - BESTEN DANK - MERCI  
BEAUCOUP - GRAZIE MILLE**