Project No.: 618103-EPP-1-2020-1-PS-EPPKA2-CBHE-JP

Edu4ALL

Disability as diversity: The inclusion of students with disabilities in higher education

Deliverable D2.5.3-B	**Developing Training Tutorials by Int@E UG-Leipzig-B**

Work Package (WP)	WP2. Establishing the Inclusive Education Unit at PC HEIs
WP Leader	National & Kapodistrian University of Athens
Task members	Palestine Technical University Kadoorie The University of the Basque Country Irbid National University Partners for Sustainable Development The University of Jordan Al-Ummah University College Palestine Technical College Int@E UG
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Project partners

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The University of the Basque Country
Spain

Irbid National University
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The University of Jordan
Jordan

Al-Ummah University College
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Palestine Technical College
Palestine

Int@E UG
Germany

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1 Introduction

This Deliverable includes the presentations used in the 2nd Training Visit to the Int@E UG, Leipzig Germany, from Junr 26th to 30th 2023, in the framework of Task 2.3: “Professional Development and Capacity building of partner country staff”

Edu4All in Leipzig, Juni 2023
Disability as Diversity
with Peggy Reuter-Heinrich

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The Inclusion of Students with Disabilities in Higher Education

- Entry, empathy and understanding
- BITV / WCAG for accessibility
- Implementing digital accessibility
- Accessible teaching and learning

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The Edu4ALL Training: Topics and overview

Entry, empathy and understanding

- Diversity and participation
- Legal, laws and the human right
- Accessibility for all digital media
- Understanding disabilities by empathy
- Removing barriers in Digital Solutions

BITV / WCAG for accessibility

- The BITV / WCAG as an opportunity
- Understanding the principles of BITV
- Checking your own BITV status quo
- Support for testing websites
- Implementing the rules to project

The Edu4ALL Training: Topics and overview

Implementing digital accessibility

- Implementation of digital accessibility
- Design for all und Universal Design
- Planning, design, content, development
- Easy language = better understanding
- Multilingual as part of accessibility

Accessible teaching and learning

- Work with CMS for websites
- Making PDFs accessible with Acrobat
- Creating accessible Word documents
- Barrier-free PowerPoint presentations
- Accessible video presentations

Extra for you – my book in englisch

A nonfiction book for successful inclusion

by Peggy Reuter-Heinrich

Digital accessibility for all!

Making your digital solutions

accessible for everyone

What more? The PDF, epub oder print?
Please mail contact buch@heires.net

Entry, empathy and understanding

Diversity and participation

Legal, laws and the human right

Accessibility for all digital media

Understanding disabilities by empathy

Removing barriers in Digital Solutions

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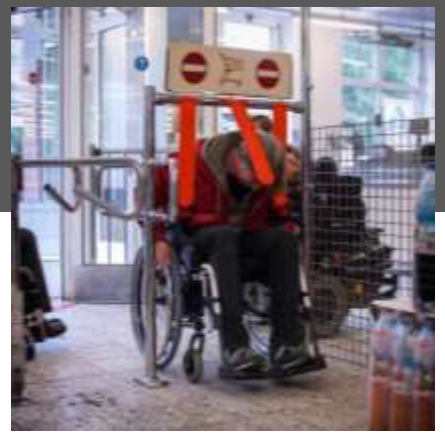
Diversity and participation



Successful inclusion by accessibility in IT

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Participation in all aspects of live

is a human right.

Inclusion means a barrier-free

and accessible digital world for everyone

Everyone is disabled

What are you disabled by?

- Basically all people are disabled. The advantage of disabled people is, that the know it.
- I know it ... And you?
- We are all disabled - by barriers which prevents us from participation
- Being excluded = discrimination
- Human right to participation for ALL
- Often violated in the digital world
- Very difficult for "disabled" people
- No one wants to discriminate people

Think about how to ensure participation!

Inclusion impossible?

IT prevents successful inclusion

- In IT inclusion rather exclusion.
- Board for wheelchair users
- Board in front of one's own head
- Something is missing for participation
- Many barriers in everyday digital life
- Many people are disabled by IT
- They become disabled people by IT.
- IT prevents people from participating
- Attention: Digital accessibility for all!
- Base for human right to participate

How accessible are your digital solutions and your education?

First class UX for people

Your Speaker: Peggy Reuter-Heinrich

- I can see well - my profession UX/UI
- With "good eyes" I design UX/UI
- Digital products: Web, Software, App
- Since 12 years IT entrepreneur
- UX designer for almost 30 years
- I design how people experience digital solutions = user experience.
- First class UX means: User centered and high responsible IT solutions for everyone
- Why now limitations, disabilities, accessibility, participation, inclusion, human rights?

What do you have to do with the subject?

Being blind = losing work

Being blind as eye-opener

- My why happened in 2018 Summer party
- A course to experience disabilities
- My worst fear was being blind.
- Everything was black, nothing, nada
- I felt disoriented, helpless, excluded
- Anxious, thoughtful and sad
- Thought blindness continued
- Occupation UX design terminated
- Blind UI designer = losing my beloved job

Who also knows "such" feelings?

Inclusion or Exclusion?

- Starting research what happens on a PC
- Everything visible as UI on screen
- Tie around eyes, keyboard, narrator
- Various digital things to use.
- Operating system and browser OK
- The result: Nothing works in the digital world
- Shopping, Banking, Social Media, News, PDF
- Excluded overall - no participation possible
- Exclusion = IT excludes people. Discrimination
- Violation to the Human rights of participation

How accessible is your education system?
And your digital systems?

The key is accessibility.

IT prevents or enables participation!

- 2019 Solution at a conference
- Microsoft Conference in Redmond
- Watching a blind developer working
- Fast and professional with software.
- Keyboard usage and listening
- The missing sense bridged with IT

The 3 main aspects of accessibility:

1. decision to participate companies
2. use abilities despite restriction
3. Accessible framework hardware / software

Main problem = accessible IT solutions

How accessible is your IT and education?

Successful digital inclusion

- IT is the key industry for inclusion
- IT is the key to participation.
- It can prevent or solve all problems.
- Digital accessibility passion and profession.
- Yes, I do fancy UI design and usability
- But now: For companies also barrier-free
- Now accessible solutions that help
- Accessibility helps everyone - also you!
- Accessibility is good for everyone
- I bring the matters of the heart to everyone
- Accessibility in lectures, writings, seminars
- Unfortunately: "Nope, doesn't concern me".

Successful inclusion by accessibility in IT

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Inclusion fails on three major errors

No 1 „It is not my problem“

Everyone is concerned by missing accessiblity in the digital world – you too

Everyone is disabled

Which of these affects you in some way?

- Little things and barriers that everyone knows
- 50% adults needs glasses > fonts / graphic big
- 20% hear badly or noting > subtitles hel
- 30% seniors or more in our society
  Old people all limitations: Sight, hearing, motor skills, mobility, thinking
- Through accessibility suitable for seniors
  >>> participation in digital life
- Otherwise old people are excluded
  >>> protection from loneliness.

Accessibility help and is good for everyone.

For better understanding

100% of all people are affected!

- Exclusive and complicated language:
  Lawyers, IT, medicine, authorities, offices ...
- Consequence: We do not understand anything
- That excludes people, discriminates.
- My book extra in easy language
- 25% migration background.
- Understandable language = mother tongue
- Offer foreign languages in IT solutions
- Effect: giving and receiving help
- IT = multilingualism simple, automatic

Understandability creates understanding!

Successful inclusion by accessibility in IT

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No 2 „I don‘t need accessibility“

Digital inclusion is failing

Every IT solution, website, App or software

should be fully accessible by law

Requirement accessibility

Do you have to provide accessibility?

- "I don't have to." The GOs has long had to
- Laws: BGG, BITV, BFStG, OZGG.
- For Web, Apps, Software, PDFs, Doc, Media
- Implementation of accessibility rather poor
- Requirement ignored in tenders
- MUST-requirement accessibility
- Lucky you? Bad luck: requirement for all
- All digital solutions for EU market
- EAA / BFSG from 2025. It's about time!
- Companies / IT creators must also deliver
- Penalties, correction, withdrawal, money back.

Error No 3. „No worth it“

Big Benefits for companies!

- More customers and more money
- Preparred for the EAA in 2025
- Address to the European Market
- Diversity as company value

Advantages for you

How can accessibility pay off?

- Is it worth it? Accessibility is worth it.
- We gain so much. Divercity in action.
- More customers = economic advantage.
- Online shopping for the blind = more customers.
- Movies/podcasts for the deaf = more reach.
- Website ÖH multilingual for "foreigners"
- Efficient in administration saves time / money
- Ability to work solves shortage skilled workers
- Fit for future by access and participation 4 all

Accessibility always pays off

No fear please

No fear of complexity and costs

- Fear of complexity and costs
- Consequence: Therefore it is left out
- Only half-baked implemented is not helpful
- Question about costs rarely comes up
- Sadly pushing away with excuses.
- This is digital human rights violation

Do you want to violate human rights?

- The IT managers would be guilty
- IT projects are expensive and stressful
- With knowledge / plan = effort OK
- More human friendly digital world

What does diversity mean? Why more participation?

Diversity is the basis for good coexistence and a peaceful future. Diversity of all people in life, society, work, education and politics.
A society that guarantees participation for all.
That is what ALL INCLUSIVE means.

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Diversity in origin and language

For better togetherness and understanding.
Outside our own homeland, we are all foreigners.

IT can deliver translations and multilingualism

Diversity in age, gender, lifestyle

Participation in education is a human right.
Everyone should be given the opportunity.

IT can deliver access to information and people

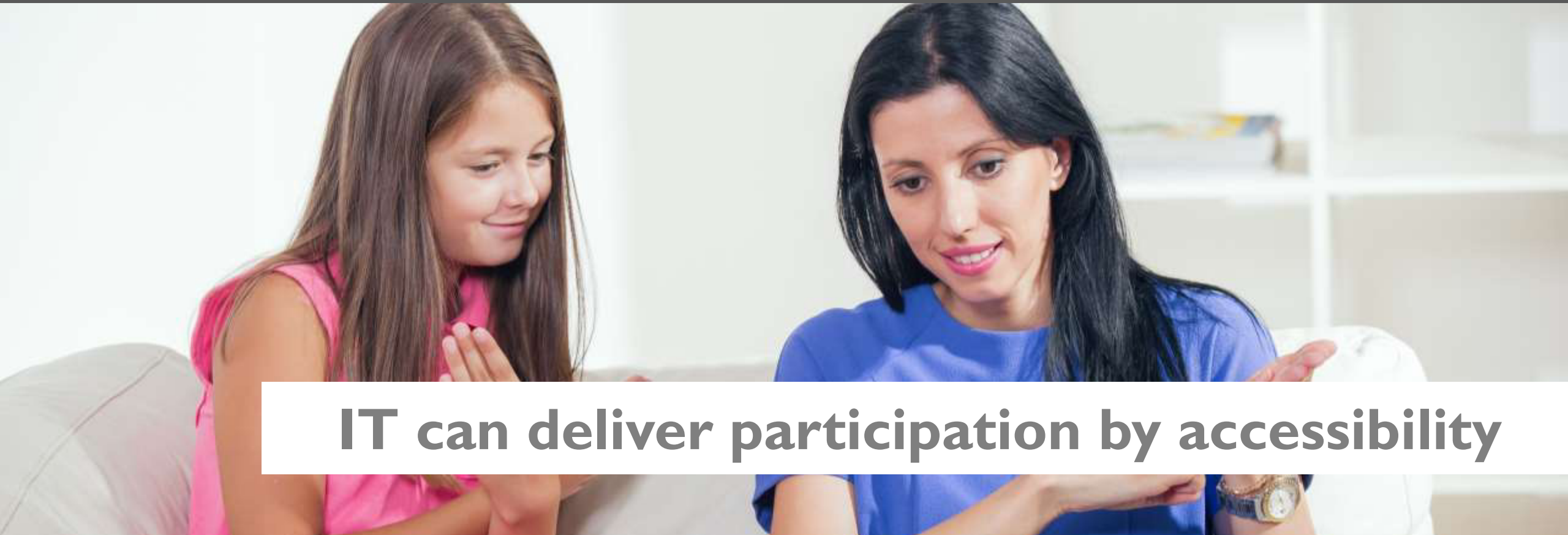
Diversity in profession and personality

Personal strengths as a hidden asset makes access to the labor market and social life more difficult.

IT can deliver fair chances and better togetherness

Diversity with people with disabilities

IT cannot cure disabilities.
But it can make life easier with them.



IT can deliver participation by accessibility

Legal requirements, laws, human rights

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Law and Morals

Laws and human rights as a legal requirements for accessibility

- Participation as a worldwide human right granted by UN
- BGG Federal Equality Act
- Europe-wide law on participation by the European Accessibility Act EAA
- 2021 in Germany by BMAS: Accessibility strengthen Law BFSG
- BITV 2.0 = Accessibility Information Technology Ordinance = WCAG

Law and Morals

Legal requirements, laws, human rights

- Specification for EU since 2016
- Mandatory for public tenders from 2017 for award of contract
- New apps and websites barrier-free from 2019, existing until 2020 / 2021
- Obligation also in trade, transportation, education, health, finance
- In other countries high penalties for non compliance, in the EU up from 2025
- Actually, it's only a moral duty.
- 2025 = Duty for IT-Products by EAA

Accessibility for all kind of digital media

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Everything accessible!

Implementation of accessibility for all kind of digital media required!!!

- For websites in Internet / Intranet
- For Apps for Apple, Google, Windows
- For professional software solutions
- For any operating system
- For PDFs and E-Books
- For Office documents
- For Video / Movie / Audio-Files
- For live presentations

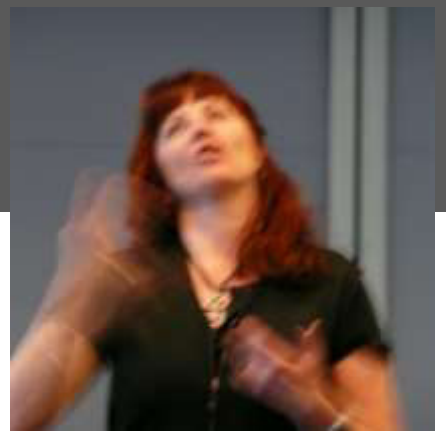
Everything accessible?

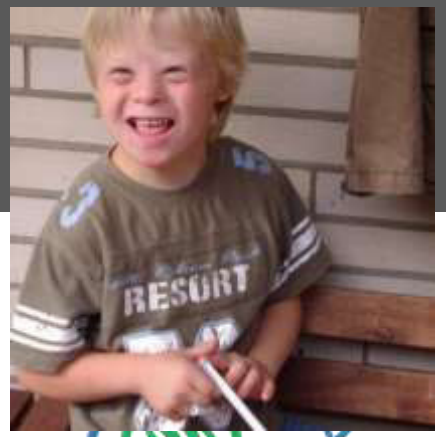
Sad reality in IT projects today

- Too expensive
- Too complicated
- No must have by the specs
- Only formalistic fulfillment

The result:
Missing or poorly solved accessibility in IT and society, education and labor market

Understanding disabilities by empathy





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Behinderungen und Einschränkungen

- Visual impairment
- Blindness
- Hearing loss
- Deafness
- Complete paralysis
- Cognitive disorders
- Brain damage
- Illiteracy
- Young and elderly people

Visual Restrictions

Causes:

- Genetic or from birth on
- Illness or Accident
- Signs of aging

Sick through IT usage: Permanent visual impairment, often glasses necessary

Impacts and trubble with:

- Disturbed colour perception
- Decreasing visual acuity
- Low adaptability
- Perception restriction

Complete blindness

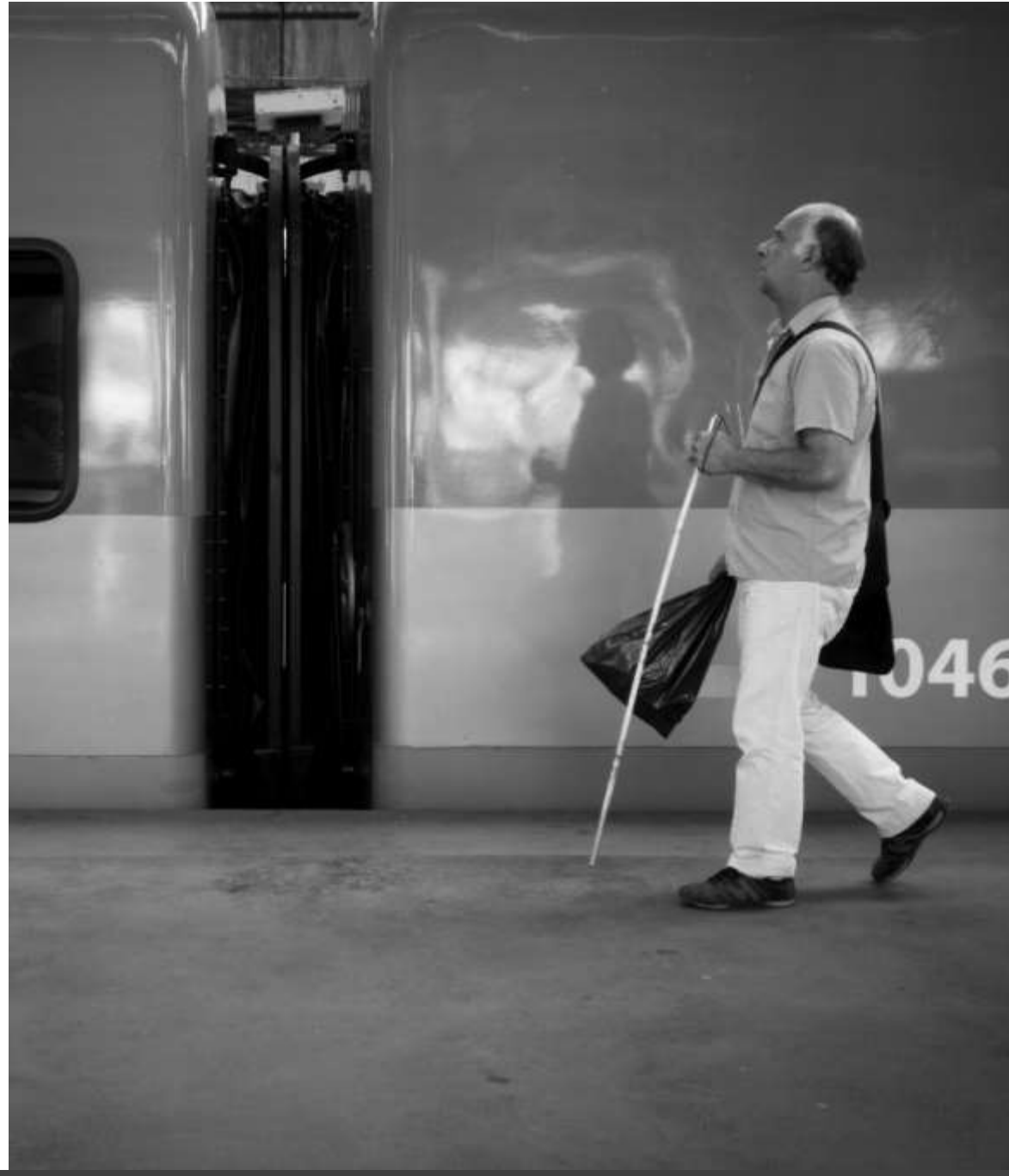
Causes:

- From birth By accident or illness
- Signs of aging
- Ursachen: Geburt, Krankheit, Alter

Sick through IT usage:
Retinal detachment due to heavy PC usage

Impacts and trubble with:

- Not any optical information
- No perception of GUIs
- No participation on film and art
- No video sessions or social media



Acoustic Restrictions

Causes

- Deaf-mute from birth on
- Occasional like sudden deafness
- Hearing loss by age

Sick through IT usage:

Hearing loss due to stress, headphones too loud

Impacts and trubble with:

- Video and Audio
- Communication (1to1, 1toN)
- Environment noises
- Presentations and events

Motoric Restrictions

If the mouse hand is broken …

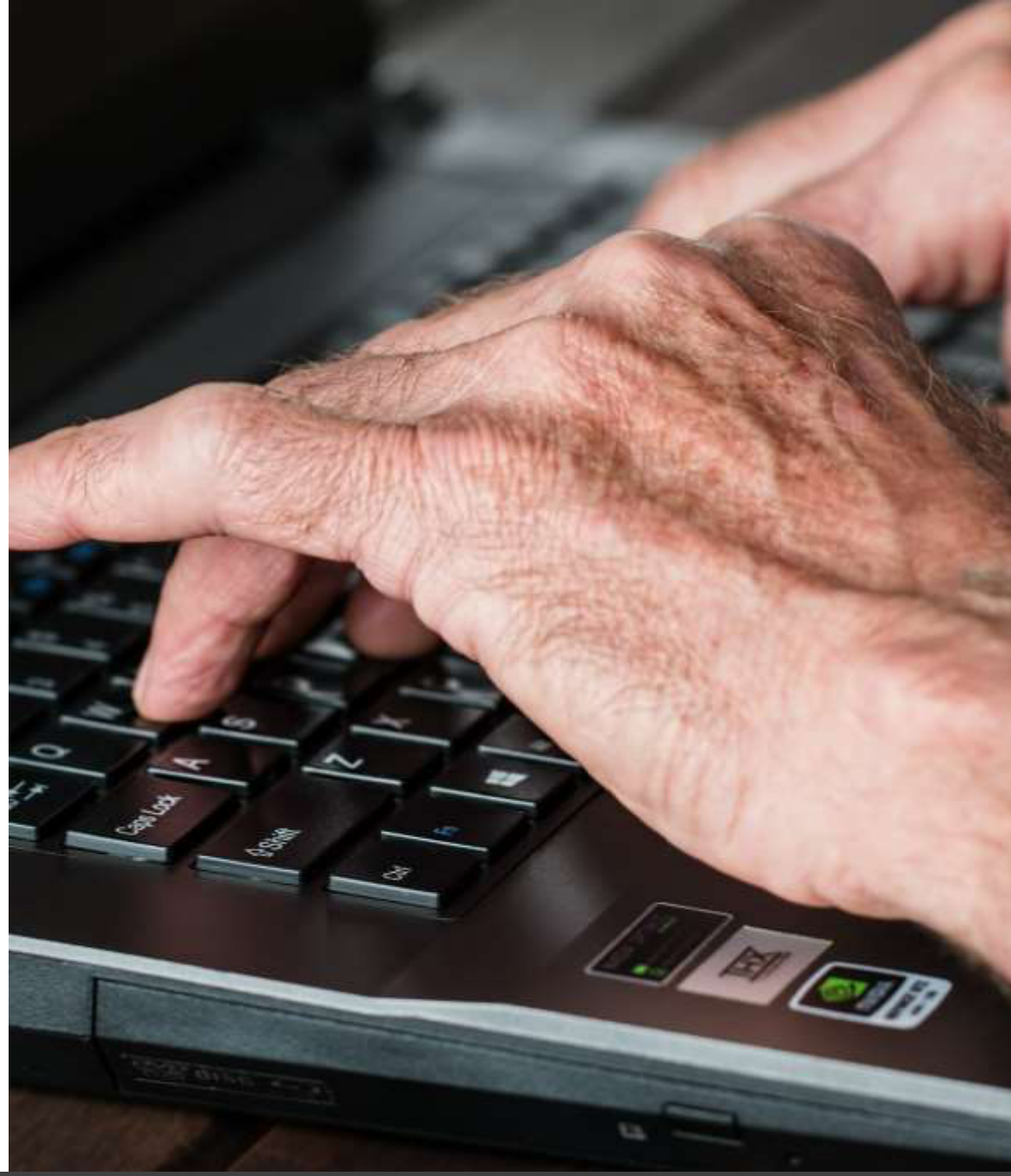
Causes

- Tremors and Parkinson's disease,
- rheumatism or gout and other signs of age
- Adhesions from birth on

Sick through IT usage: Tremor and long-term Computer Damage and neck

Impacts and trubble with:

- Difficulties in mouse operation
- Keyboard control essential
- Lower reaction speed
- Difficult precise and pen operation (Shaky hands)



No hands available

The hands free mode needed

Causes

- Situational (in car or plaster)
- Arm loss through accident / amputation
- From birth like thalidomide "contagan"

Sick through IT usage:
Inflammation mouse usage

Impacts and trubble with:

- No mouse operation possible
- Keyboard control hardly possible
- Pen operation hardly possible

Partial or full paralysis

Total disability of Mobility
Causes

- Situational (in car or plaster)
- Arm loss through accident / amputation
- From birth like thalidomide “contagan”

Sick through IT usage: Accident due to cell phone use or damage in the back

Impacts and trubble with:

- Partial mouse or keyboard only
- No free movement in space
- Complete restriction in moving

Cognitive limitations

Thinking different

Causes

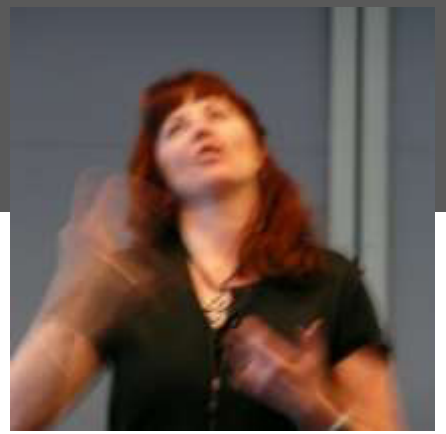
- Down syndrome at birth
- Traumatic brain injury due to Accident or stroke
- Consequential harm from drug use
- Alzheimer's disease / Dementia at elderly people

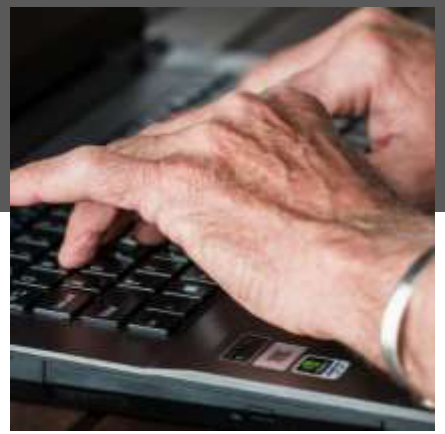
Sick through IT usage: Digital dementia, getting stupid by AI, depression by isolation, ADHD by social media overusage

Impacts and trubble with:

- Lower brain performance
- Limited perception capacity
- Speficial behavior an social interaction
- Dyslexia / illiterate person

Removing barriers in Digital Solutions





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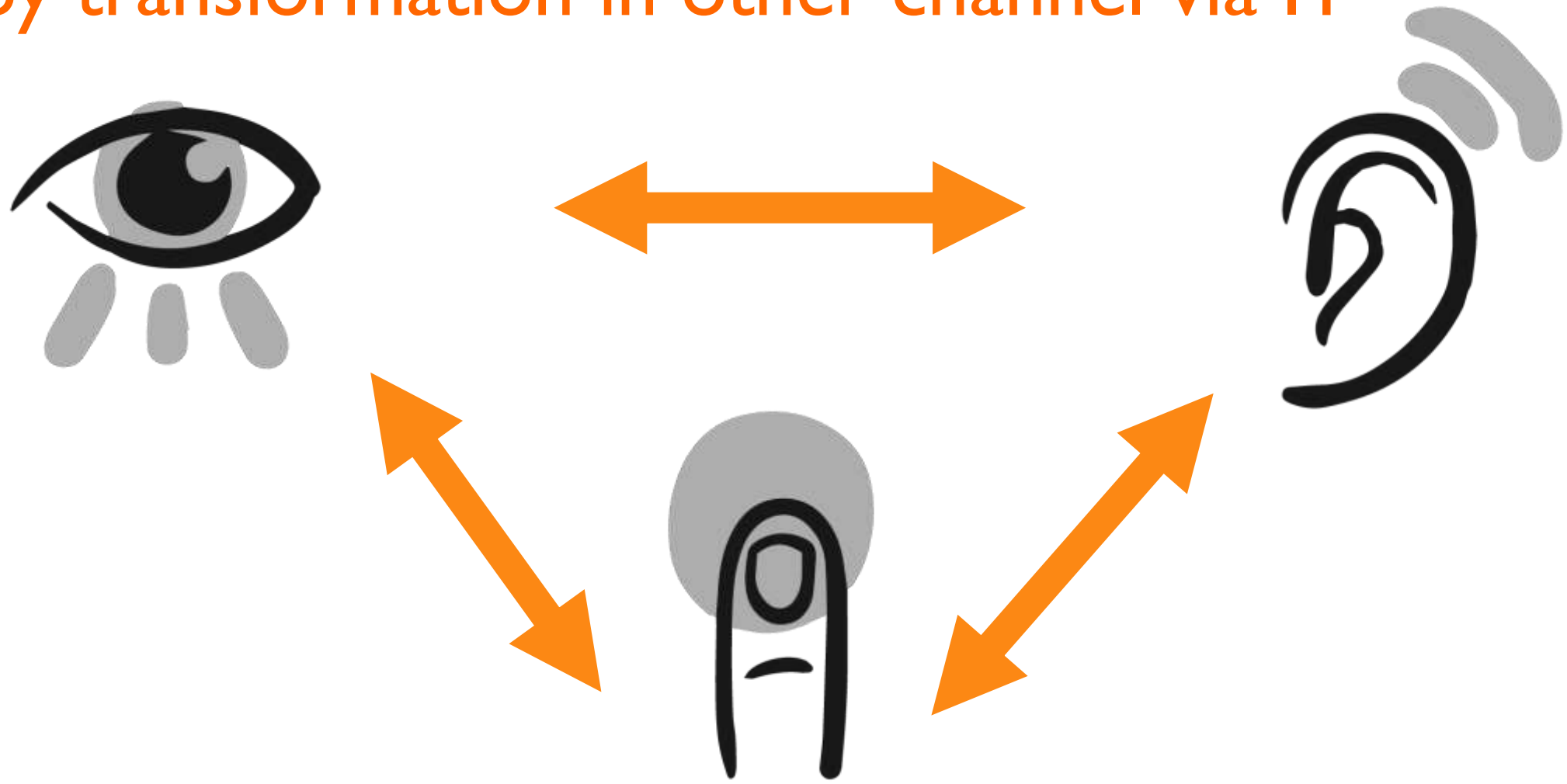
Compensate limitations and disabilities by transformation in other channel via IT



Visual Restrictions

Opportunities with IT:

- Colour blindness
  - Avoid pure colour orientation
  - Icon-Text-Combinations
- Poor Eyesight in contrast
  - Using clear contrasts
  - Open for contrast switching
- Far- and Nearsightedness
  - Larger fonts and icons
  - Clear typography and graphics
  - Distances and separations
  - Zoom settings

Complete blindness

Being less blind through IT

Opportunities with IT:

- Possibility is hearing and feeling
- Making visible audible and tangible
- Keyboard operation and tabbing
- Alternative texts to visual elements
- Binding helper technologies (Braille)
- Connecting reading technologies
- Convert camera input into speech

Acoustic Restrictions

Those who can not hear must see

Opportunities with IT:

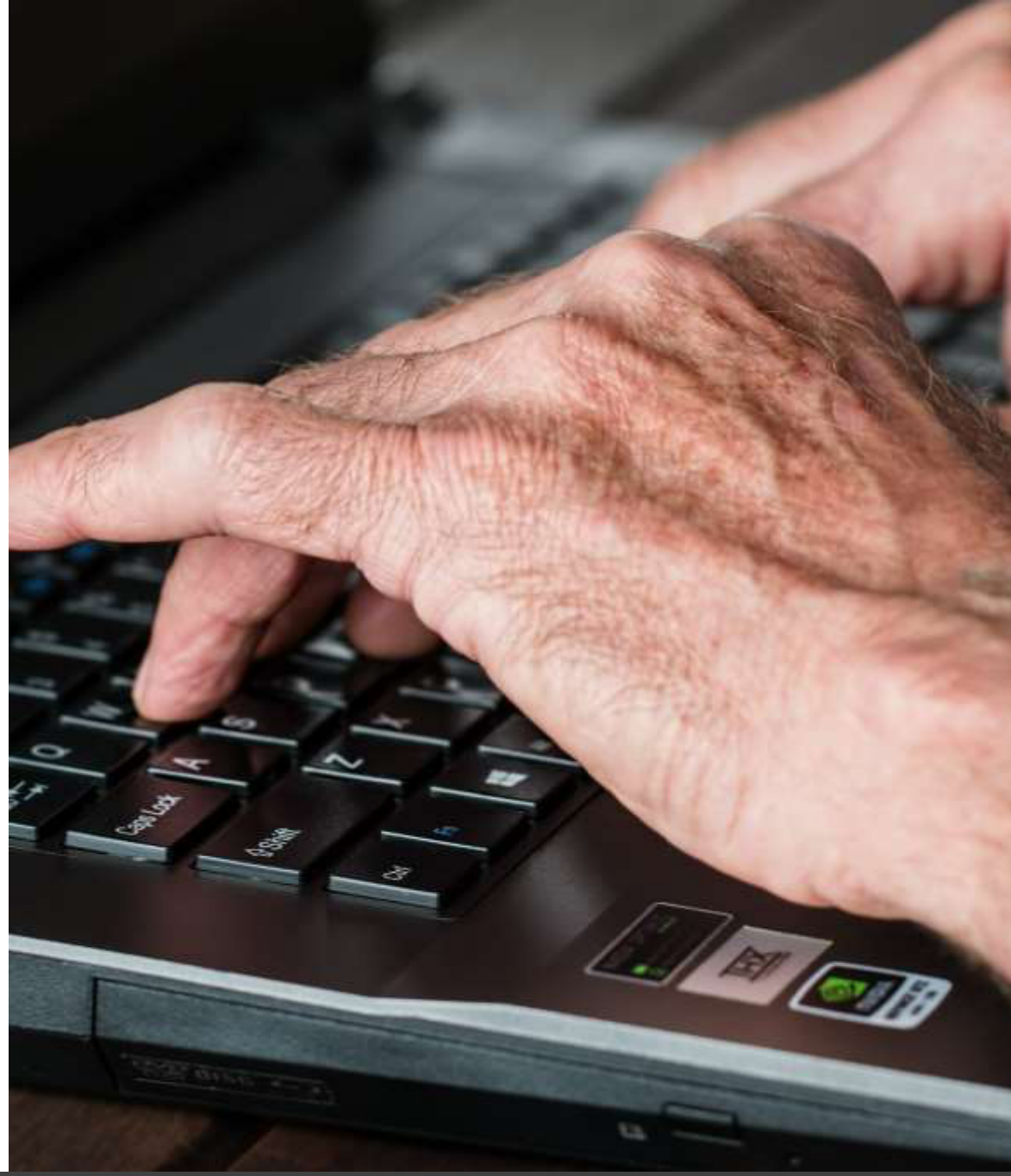
- Possibilities - see instead of hear
- Alternative text to audio content
- Subtitles in videos - static or live
- Sign language as a extra language
- Offer other channels
- Hearing aid or bone headset
- AR / technology with conversation avatar with sign language

Motoric Restrictions

If the mouse hand is broken

Opportunities with IT:

- A more grippy design
- Touch control
- Gesture control
- Voice control



No hands available

The hands free mode

Opportunities with IT:

- Control by mouth-piece
- Control by extension
- Voice control
- Control via the eyes

Partial or full paralysis

In memory of Steven Hawkins

Opportunities with IT:

- Voice control
- Eye control (Windows 10 or VR)
- Experimental brain control
- IoT Approaches and robotic
- Home Control Systems
- Information systems on accessibility for wheelchair users

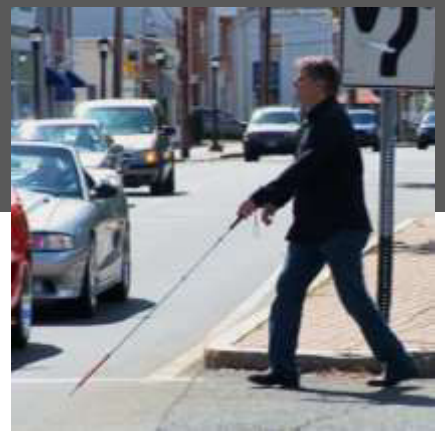
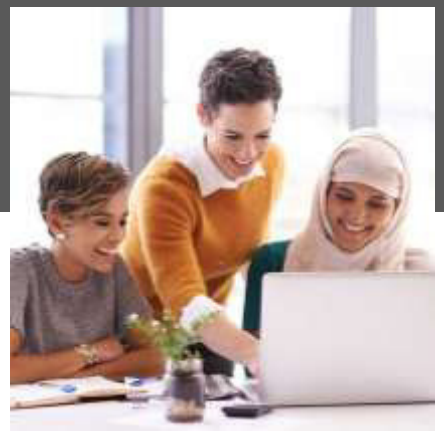
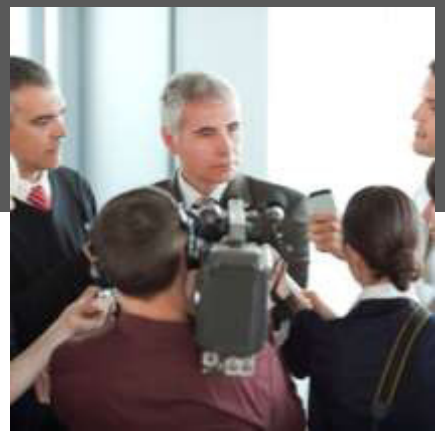
Helpful for everyone

Think different!!!
Help for affected and all people

Opportunities with IT:

- Easy understandable language
- Clear simple design
- Visual language and visual stories
- Read aloud mode for listening
- Playful and interaction to maintain attention
- Friendly discrete solutions – easy acessibible and free of charge

Accessibility is created through the cooperation of all

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For all affected people

- Together with people with disabilities
- Targeted assistance for those affected
- Use of accessible IT solutions
- Spreading so others take benefit
- Opinions, critics, wishes, ideas welcome
- Continuous improvement as a goal
- Own ideas more than welcome

For all the helpers

- For helpers, caregivers, clubs, charities
- For a better cooperation in the dialogue between people in need of help, authorities and charities
- Active interaction with other nonprofits and helpers
- Helping is our common concern
- Making the world a better place
- Own digital ideas welcome

For the public sector

- Together with the government, federal state, cities, counties, municipalities
- Signs of a people- and IT-friendly region
- Helping citizens with digital solutions
- Effectiv as a regional establishment
- Spreading wide so that user can benefit
- Free of charge digital solutions
- Involvement of state, city or county
- Together with every organization of the public sector like universities, public transport, hospitals, authorities

For companies and business

- For business, companies, private sector
- Business as local playser of the region
- Sponsoring with meaningful value
- In the sense of social responsibility
- Chance for getting more workers
- Being a valuable player in IT business
- Duty of accessibility up from 2025
- Fit for the future – the EAA is coming

For creators and IT makers

- For all IT people and decision makers
- For designers and developers
- For all content creators and journalists
- For all authors, writers, speakers
- For trainers, teachers, professors

Accessilibity, inclusion and participation is in your hand and responsibility!

Let everyone take part – NOW!

BITV / WCAG for accessibility

The BITV / WCAG as an opportunity

Understanding the principles of BITV

Checking your own BITV state

Support for testing websites

Implementing the rules to project

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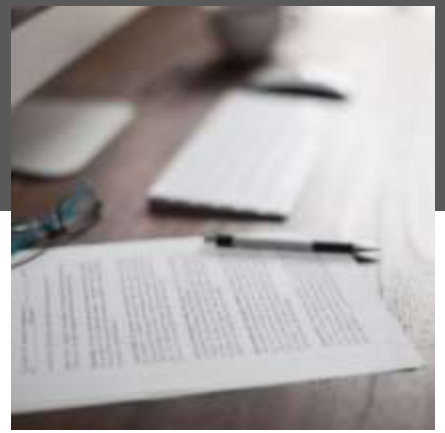
The BITV / WCAG as an opportunity



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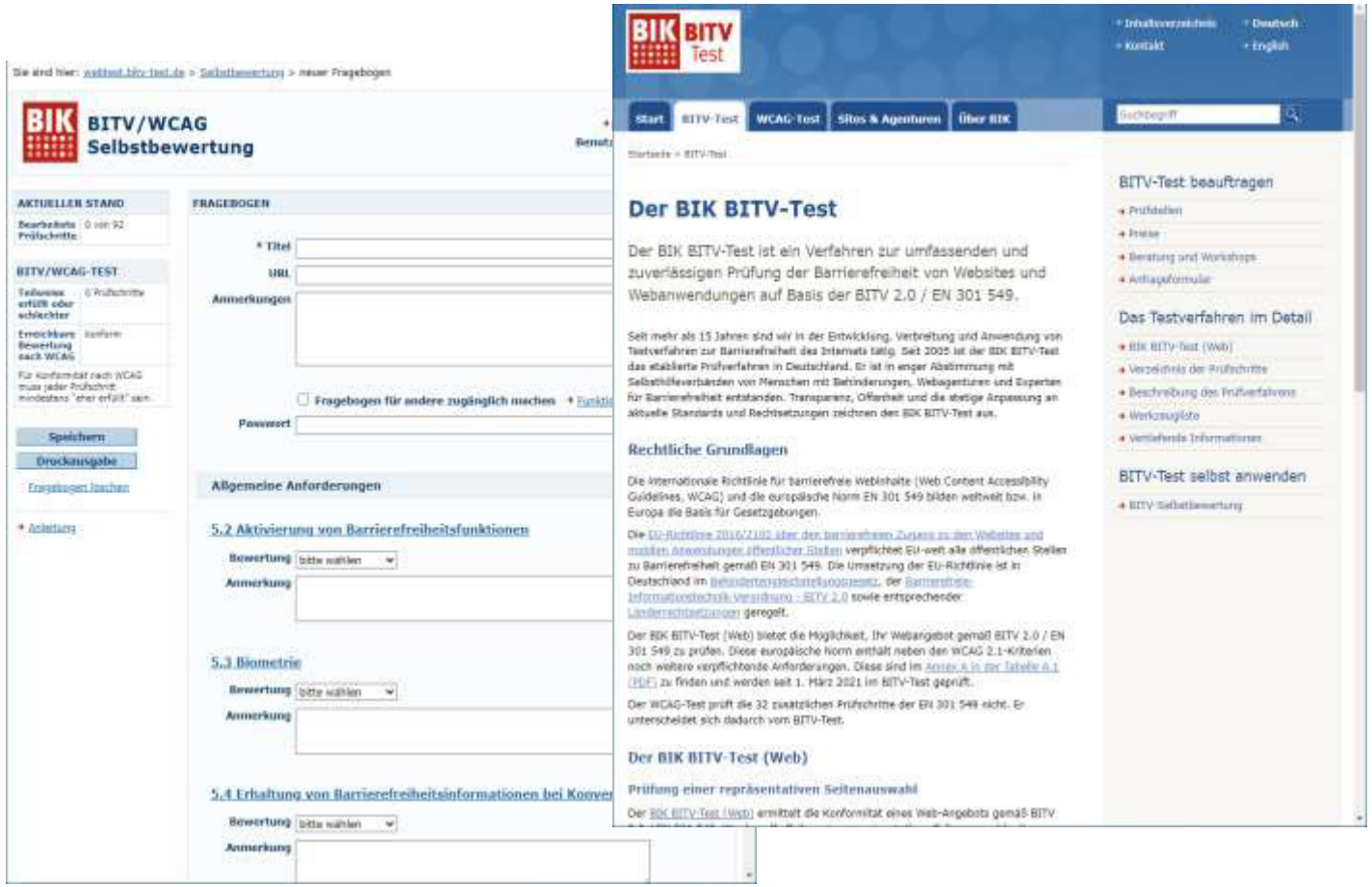
The BITV / WCAG as an opportunity

Advantages of certification

www.bitvtest.de

- Clear criteria
- Verification by BITV
- Tool for self-test
- Certificate at 100%

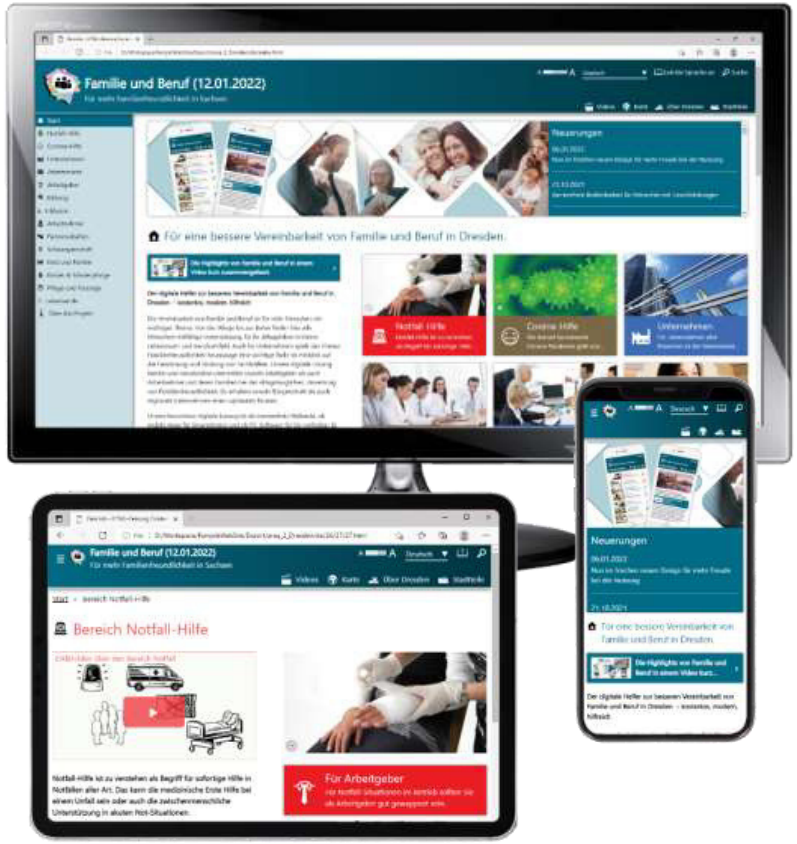
Where is the benefit for you?



The BITV / WCAG as an opportunity

Listing of the project

- Qualification
- Testability
- Realization
- Legally compliant
- PR-conducive



Where is the benefit for you?

The BITV / WCAG as an opportunity

For HeiReS GmbH

- New perfect USP
- Services Accessibility
- Customer spectrum

For IT hilft gGmbH

- Now IT really helps ...
- Purpose fulfillment

Where is the benefit for you?

HEINRICH & REUTER SOLUTIONS GMBH

HeiReS®

ithilft

Gemeinnützige GmbH

für sozial gerechte IT-Projekte

The BITV / WCAG as an opportunity

Our product ConDiSys

- Headless CMS
- For all platforms
- Added product value
- Customer enhancement

Where is the benefit for you?

Taten zählen mehr: www.familie-und-beruf.online

- Implementation of BITV 2.0
- Accessible Website
- WPF for desktop
- Android app
- iOS app
- Explaination videos
- Easy language
- Chatbot with AI

Taten zählen mehr: www.familie-und-beruf.online

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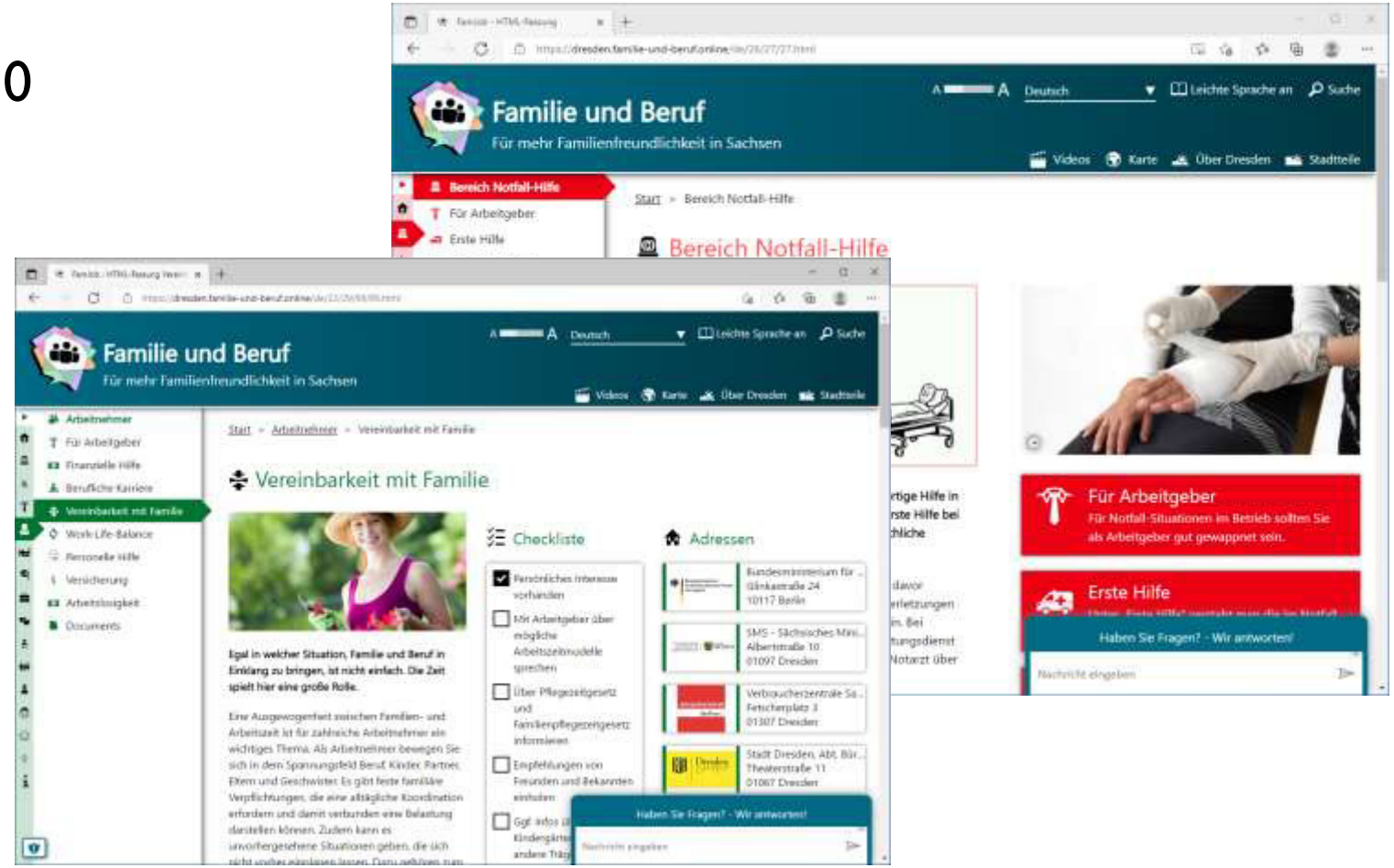
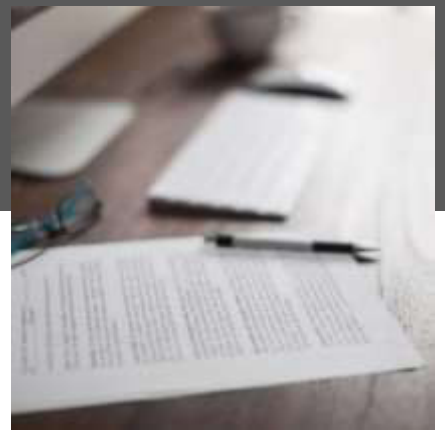


Understanding the principles of BITV



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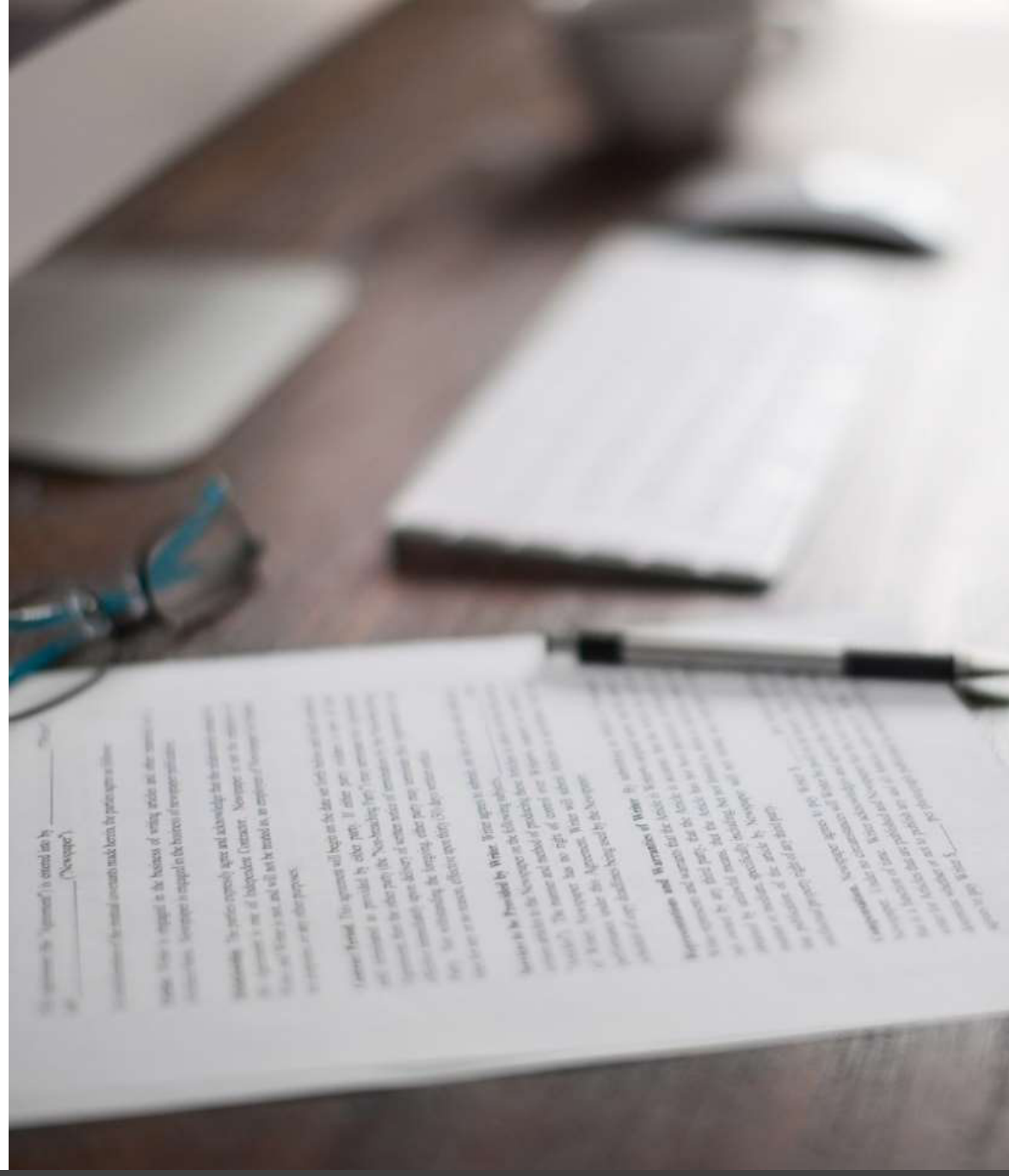
The BITV 2.0 itself

- BITV = Barrier-free Information Technology Ordinance
- 4 major principles
- 98+ very detailed rules
- Compliance with every single rule
- Base for BITV conformity
- BITV compliant = Usability 4 all



Noticeability (Wahrnehmbarkeit)

- All people should be able to perceive everything.

- All the rules of this principle must be fulfilled.

On noticeability

Text alternatives

- Explain essential visual graphics textually - via alt texts
- Also explain control elements
- No text: white space, spacers, icon-text combinations, pure deco images and and captchas
- (Aria- hidden or empty Alt-texts)

On noticeability

Text for time-based media

- Text alternative for audio and video
- Recorded audio and video
- Enhanced subtitles
- Audio description Full text alternative
- Live subtitles for streaming
- Audio description for visuals

Good Examples:

- Explanation videos
- Youtube or LinkedIn

On noticeability

Data structures correct

- Headings according to technical hierarchy
- Lists visible and technically correct
- Quotations visible and as quotation
- Text structure - in programming Data tables correctly implemented
- Table cells correctly implemented
- Layout markup free of table structure
- Labeling of forms with labels

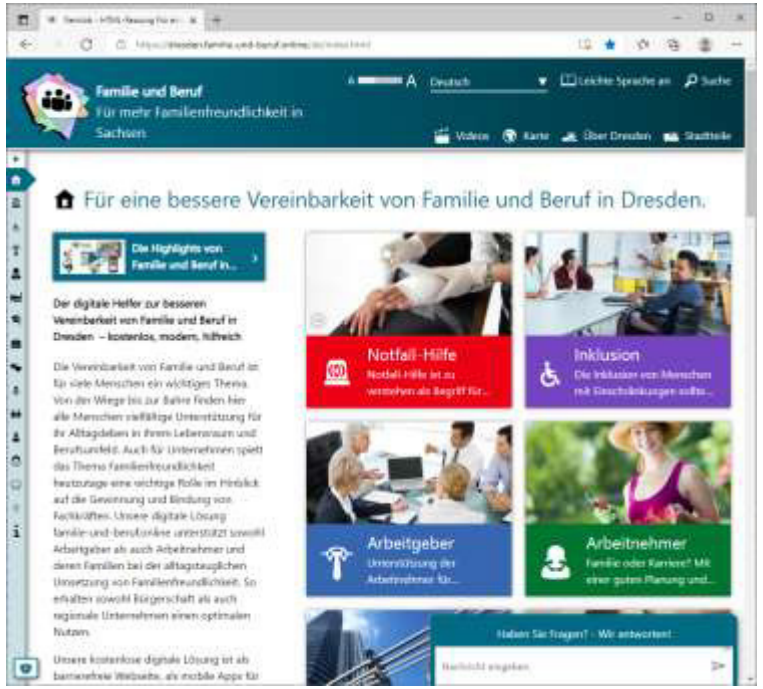
On noticeability

Meaningful sequence

Logic fit to the operation

Tips:

- Always keep reading direction
- Observe logic of content
- top left to bottom right
- Reverse reading direction Arabic



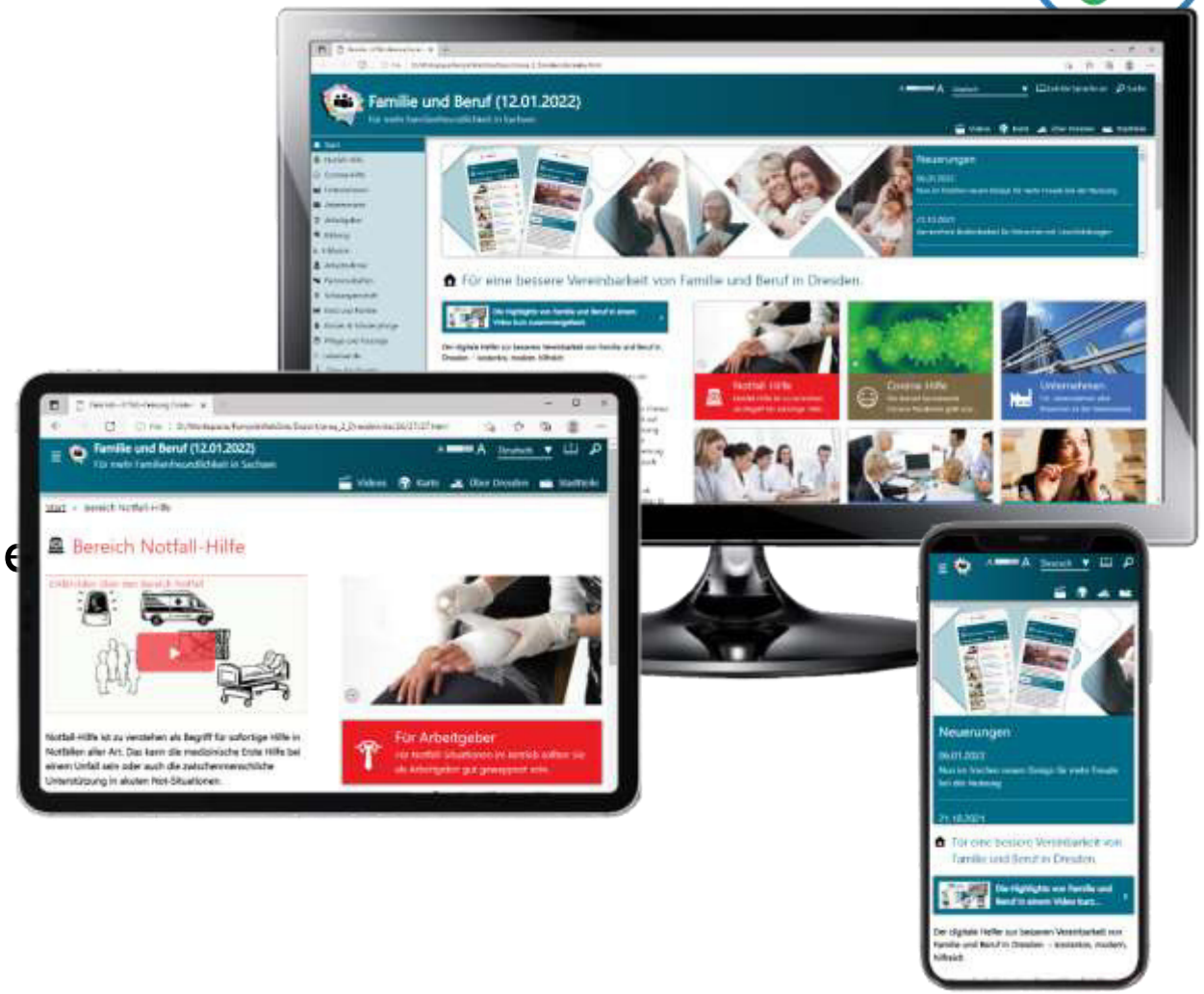
Gute Beispiele:

- Dresden.familie-und-Beruf.online

On noticeability

Screen orientation

- Portrait or landscape orientation
- Usable in different browser sizes without restrictions
- Necessary for modern website Mobile First Principle



On noticeability

Distinctive

Colour without guidance function

- Colour is pure decoration
- Addition of icons and text

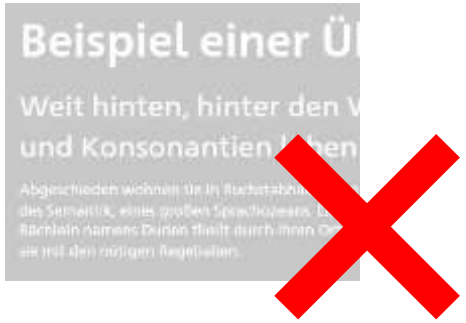
On noticeability

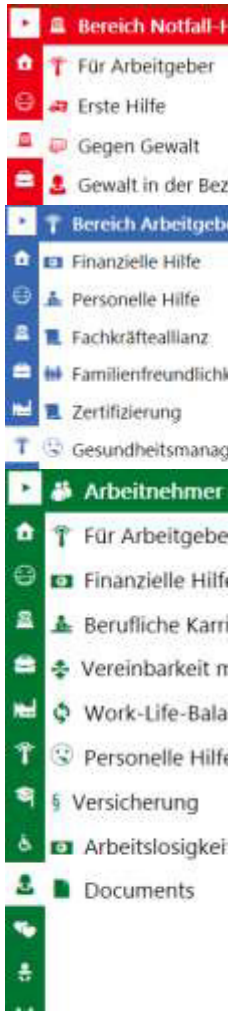
Distinctive

Contrast strength

- Clear contrast background and foreground SHOULD be 4.5:1
- Alternative: High-Contrast-Theme

https://www.leserlich.info/werkzeuge/kontrastrechner/





On noticeability

Distinctive

Changeable text size

- About the system
- Magnifying glass function
- Size of font in settings
- Larger font per se
- Text can be enlarged to 200

On noticeability

Distinctive

No font graphics

- Font only as real text
- Exception Logo, if included in logos, make available as alternative text

Design und Entwicklung

WelcomeApp Germany

Bereitstellung und Beratung

```
▸ <p style="font-size:0.8em;">…</p>
  <img src="https://storage.familie-und-beruf.online/images/IThilft_Logo.png" alt="IThilft Gemeinnützige GmbH Logo IT-Lösungen für
  Menschen " height="70">
</a>
```

On noticeability

Distinctive

Pagination when changing view

Information should be available without the user having to scroll horizontally

Für eine bessere Vereinbarkeit von Familie und Beruf in Dresden.

Für eine bessere Vereinbarkeit von Familie und Beruf in Dresden.

On noticeability

Distinctive

Non-text contrasts

Elements such as graphics, photo and graphic controls should have a contrast ratio of 1 to 3 to the adjacent colours

On noticeability

Distinctive

Faded-in content operable

- Content does not close by itself
- Content can also be closed without changing the focus e.g. Esc key
- Content does not close when mouseover

Usability (Bedienbarkeit)

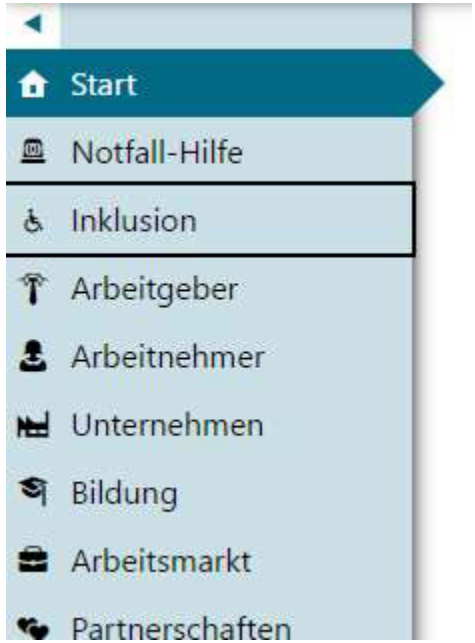
- All people should be able to use the application completely.
- All rules of this principle must be fulfilled.

On Usability

Accessible via keyboard

Usable without mouse

- Enable control via keyboard
- Always keep reading direction (right to left and top to bottom)
- Automatically generated by code, otherwise tab index
- Consider Focusvisual

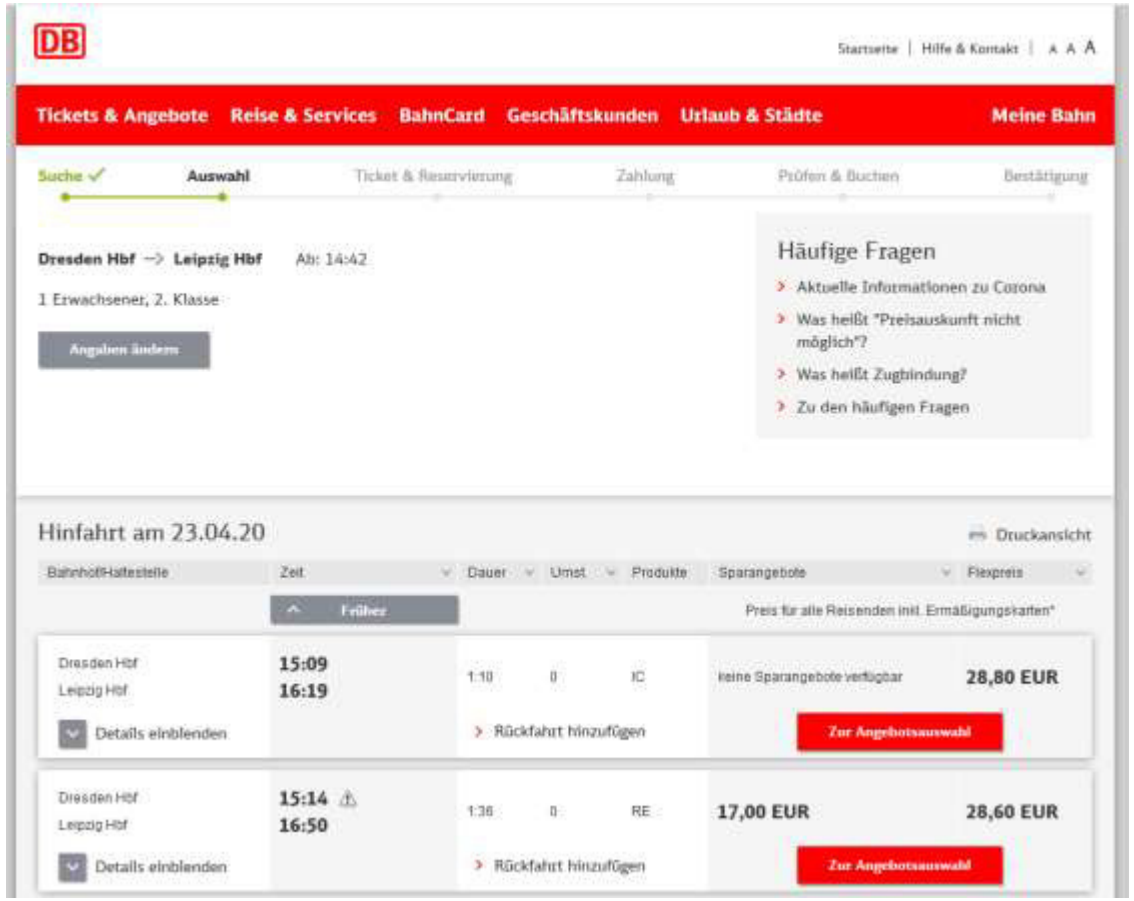


On Usability

Accessible via keyboard

No keyboard trap

- Full controllability down to every function important
- Traps often occur in pop-ups, F&Q or social media integration.
- Keyboard shortcuts can be disabled or customized
- Often in software, rarely websites

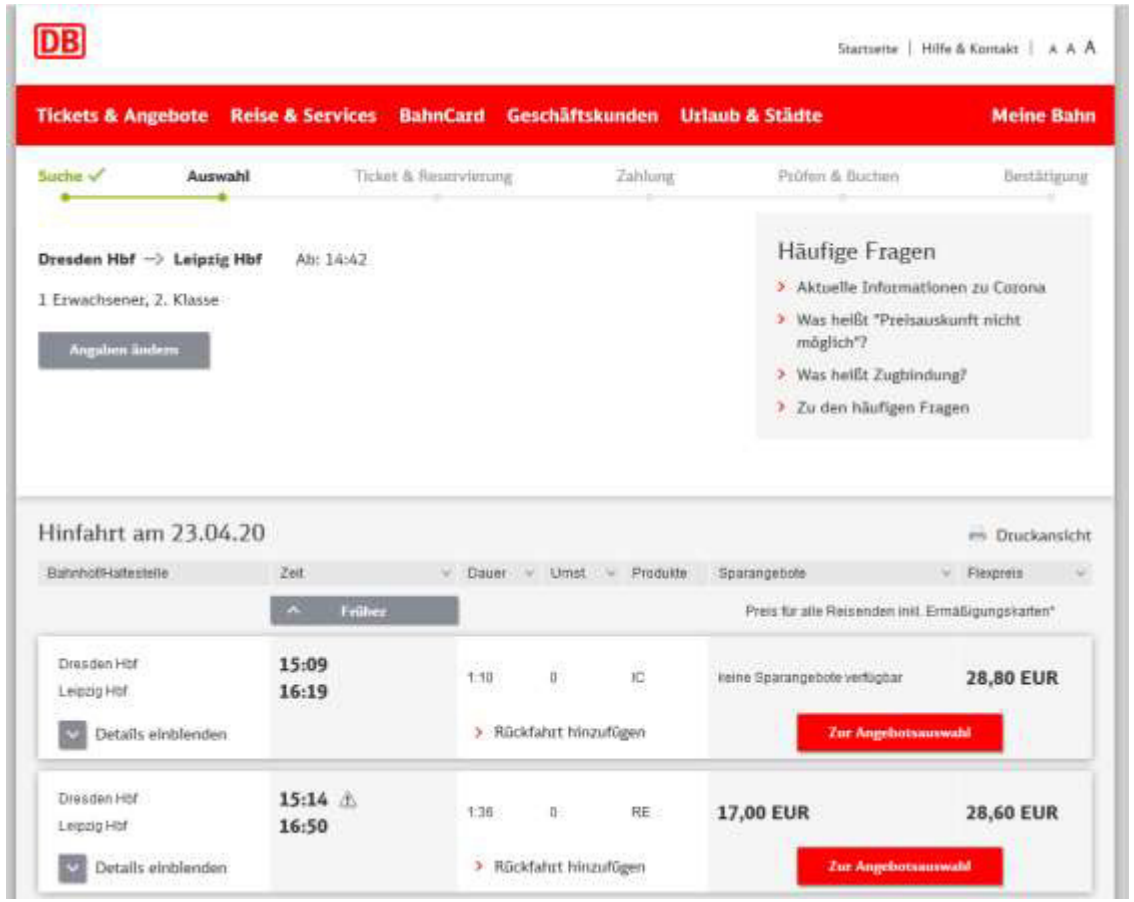


On Usability

Sufficient time

Time-related requirements

- Login or fill in without time restriction
- Animations can be switched off after 5 sec. Stop, end, fade out
- Design animation sparingly
- Changing content should be able to be paused for reading or viewing



On Usability

Attacks

No flickering and flashing

- No fidgeting giffis or frantic blinking
- Keyword flashing frequency
- 3 times rapid flashing

On Usability

Navigable

Logical focus sequence

- Matching the operating logic
- Always follow reading direction (from left to right and top to bottom)
- Partly automatically generated by the code or tab index in case of emergency

On Usability

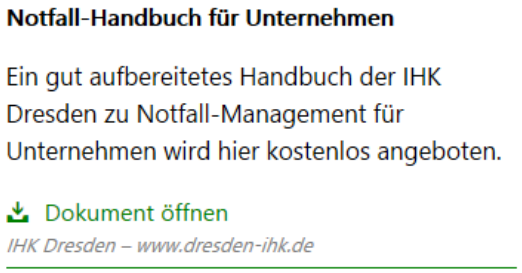
Navigierbar

Klarer Zweck eines Links

- Schlecht: klicken Sie hier
- Besser: Download starten

Alternative Zugangswege

- mehrere Bedienwege anbieten

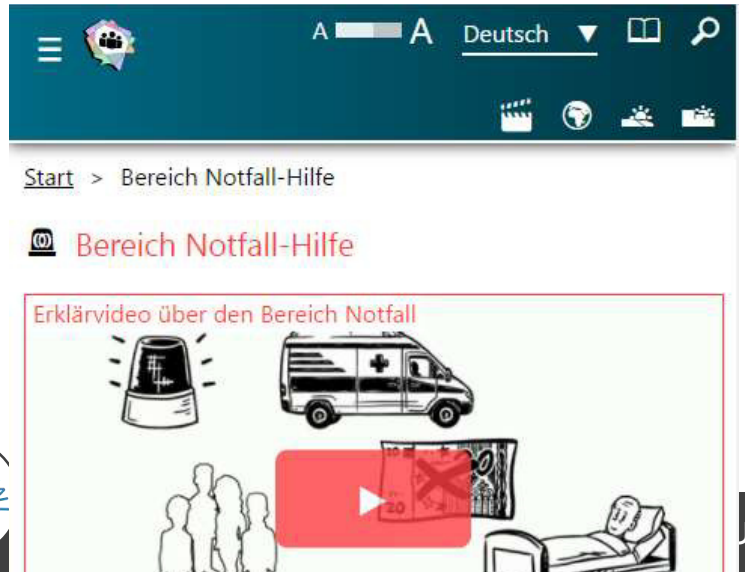


On Usability

Navigable

Label and heading as meaningful names

The content should be described by a meaningful heading



Navigable

Visible focus

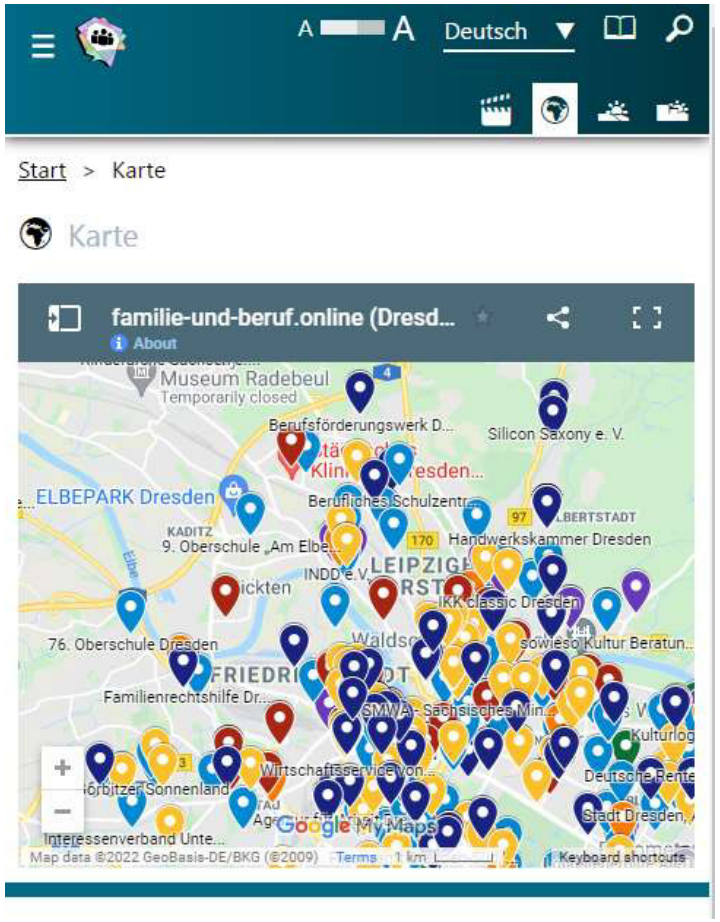
Provide corresponding focus visual

On Usability

Input modalities

Alternatives for complex gestures

- path-based pointer gestures (such as swipe gestures or multi-point gestures) also work through simple pointer gestures (tap or click)
- Zoom pointer gesture function also possible through buttonsCancellation of the pointer gesture possible



Understandability (Verständlichkeit)

- All people should be able to understand everything.
- All the rules of this principle must be fulfilled.

On Understandability

Readable

Specify main language

- Consistent use of language
- Everything in main language only
- No denglish mix
- Attention also check in iframes

```
<!DOCTYPE html>
<html lang="de">
  <!--Hublayout-->
  <!--Metadaten-->
  <head>…</head>
```

Readable

Marking different languages

- Language of individual sections
- No change of reference
- Keep same language and mark up different
- Attention: No mixed languages

```
<p lang="en-GB">This paragraph is defined as British English.</p>
```

On Understandability

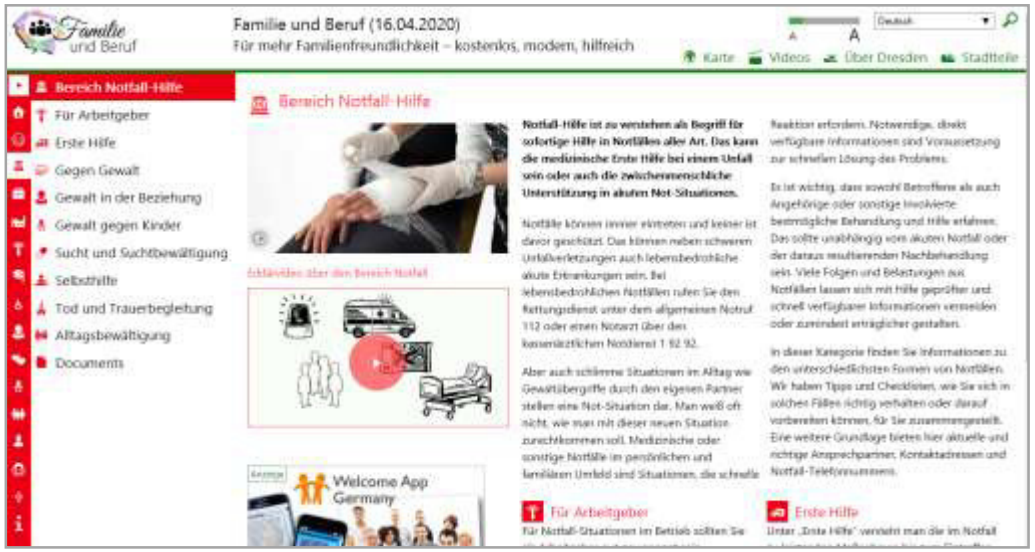
Predictable

Consistent navigation position

- Uniform operation
- Same look and texts

Adapted across systems

- Uniform designation Consistent designations
- Same language / wording



On Understandability

Assistance with the input

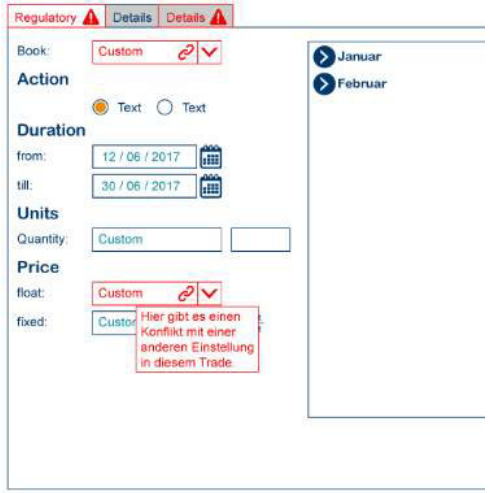
Error identification

- directly at location or page reloaded
- above the form fieldin text form and clearly identified incorrect fields

Label form elements

No input fields without label

- Suggested corrections
- Speaking error messages
- Element correction



Robustness (Robustheit)

- All people should be able to use everything without any problems.

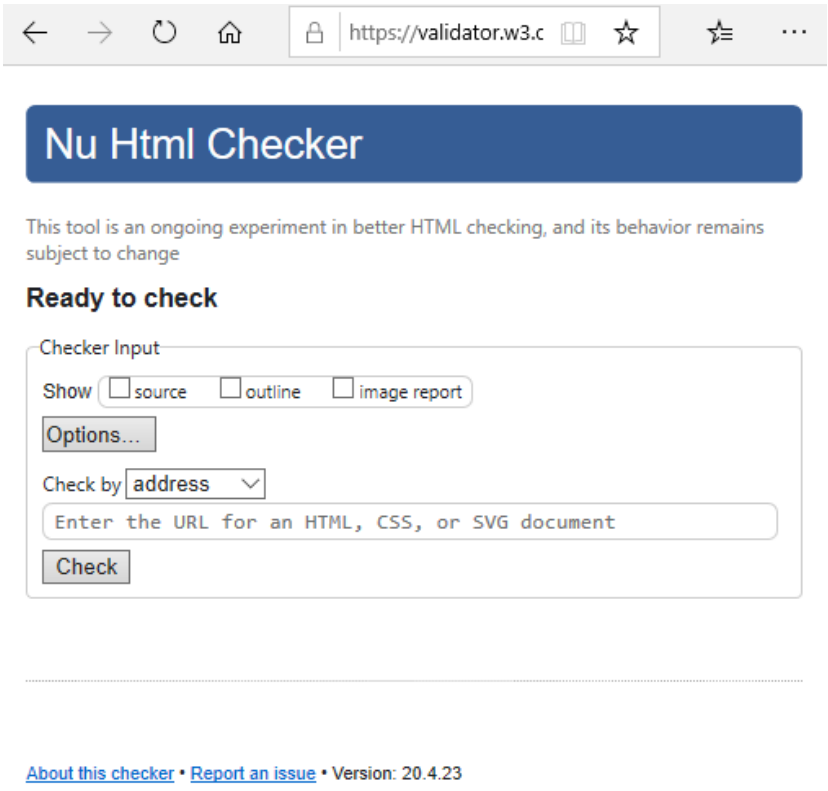
- All the rules of this principle must be fulfilled.

On Robustness

Compatible

Correct syntax in the UI

- Standard-compliant work
- Applies to any markup language, but especially in HTML
- https://validator.w3.org/nu/
- https://developer.paciellogroup.com/blog/2019/02/wcag-2-0-parsing-error-bookmarklet/

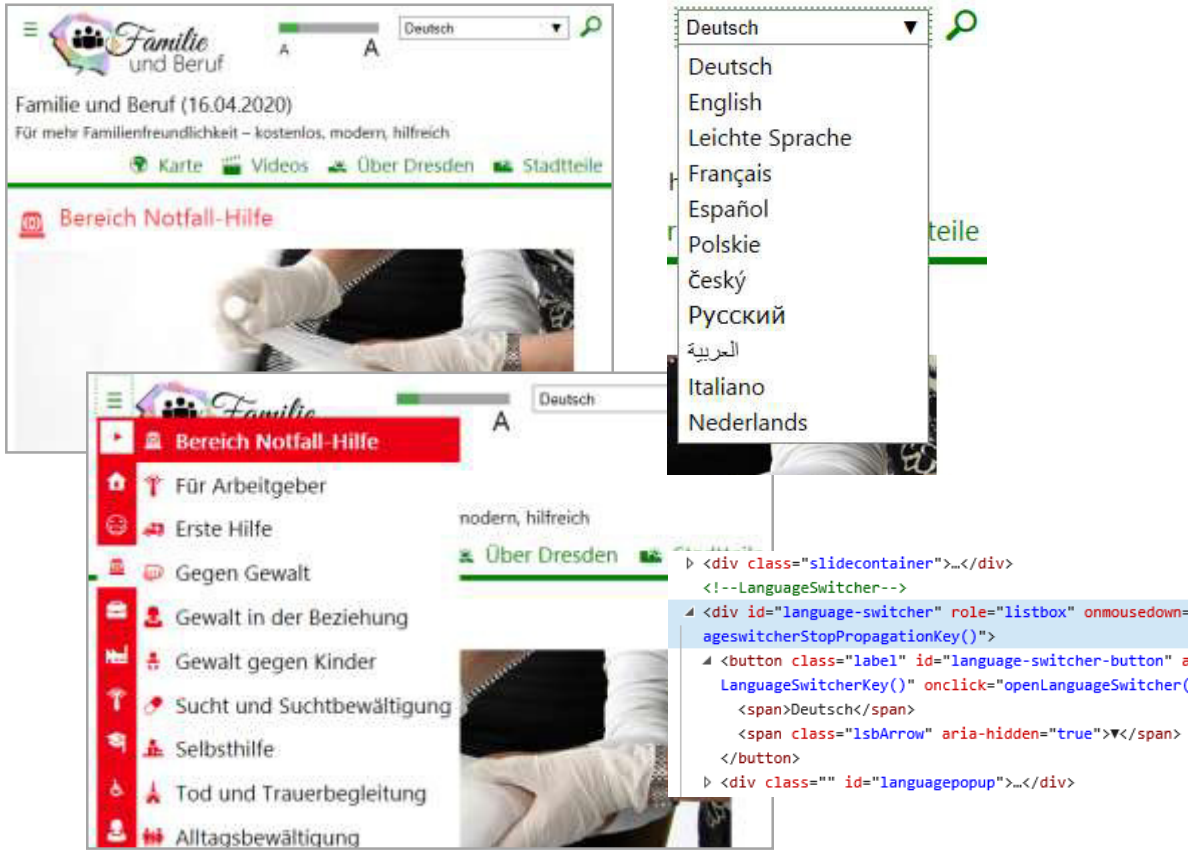


On Robustness

Compatible

Name, role, value as parameters

- Provide control elements with parameters Name-Role-Value
- If something has a different status, e.g. menu open or closed.
- Or something has a special role e.g. combo box (list box in HTML)




```
<button class="label" id="BurgerButtonMainMenu" aria-expanded="true" aria-label="Hauptnavigation öffnen"
onkeydown="toggleBurgerMenuKey()" onclick="toggleBurgerMenu()" onfocus="closeLanguageSwitcher()">
```

On Robustness

Compatible

Status messages clearly available programmatically

- Examples of status messages:
- Goods have been added to the shopping basket in the shop
- 3 books added to the watch listForm successfully submitted (success message)

Added to Basket

Pattern Name: Starter Set Edition

Vielen Dank!

Ihr Feedback wurde verschickt!

Extra Rules from WCAG to modern IT

- WCAG = Web Content Accessibility Guidelines.

- All the rules of this principle must be fulfilled.

Extra rules from WCAG

General requirements

Activation of accessibility function

If accessibility functions are offered, then they can also be activated barrier-free.

- Contrasts
- Animations
- Font sizes

If the user sets certain values in the browser, the website must not overwrite anything.

Biometrics

An alternative to biometric is needed.

Frequently used for registrations:

- Fingerprint
- Face ID
- Voice Recognition

Extra rules from WCAG

Two-way voice communication

- Audio bandwidth for speech
- Real-time text communication
- Visually distinctive display of text messages
- Programmatically distinctive display of text messages
- Display of speaker identification
- Real-time display of speech activity
- Interoperability of real-time text communication
- Reaction speed of real-time text communication

Extra rules from WCAG

Two-way voice communication

Caller identification

Caller identification should (also) be available as text.

Alternatives to voice-based services

If voice input is possible, provide an alternative such as text input or operation by button

Extra rules from WCAG

Video communication

- Resolution for video telephony min. 320x240 pixels
- Frame rate min. 20 better 30 frames / second
- Synchronicity for video telephony with sound and image synchronous
- Visual display of audio activity
- Speaker should be visible
- Speaker display for sign language communication
- Subtitle playback
- Simultaneous subtitles
- Preservation of subtitles
- Subtitle adjustment in font size
- Spoken subtitles (languages)

Extra rules from WCAG

Video communication

- UT Jump marks from text to video
- UT must be preserved during transmission or conversion
- Playback of audio description
- Synchronous audio description
- Preservation of audio description
- UT includes full AD

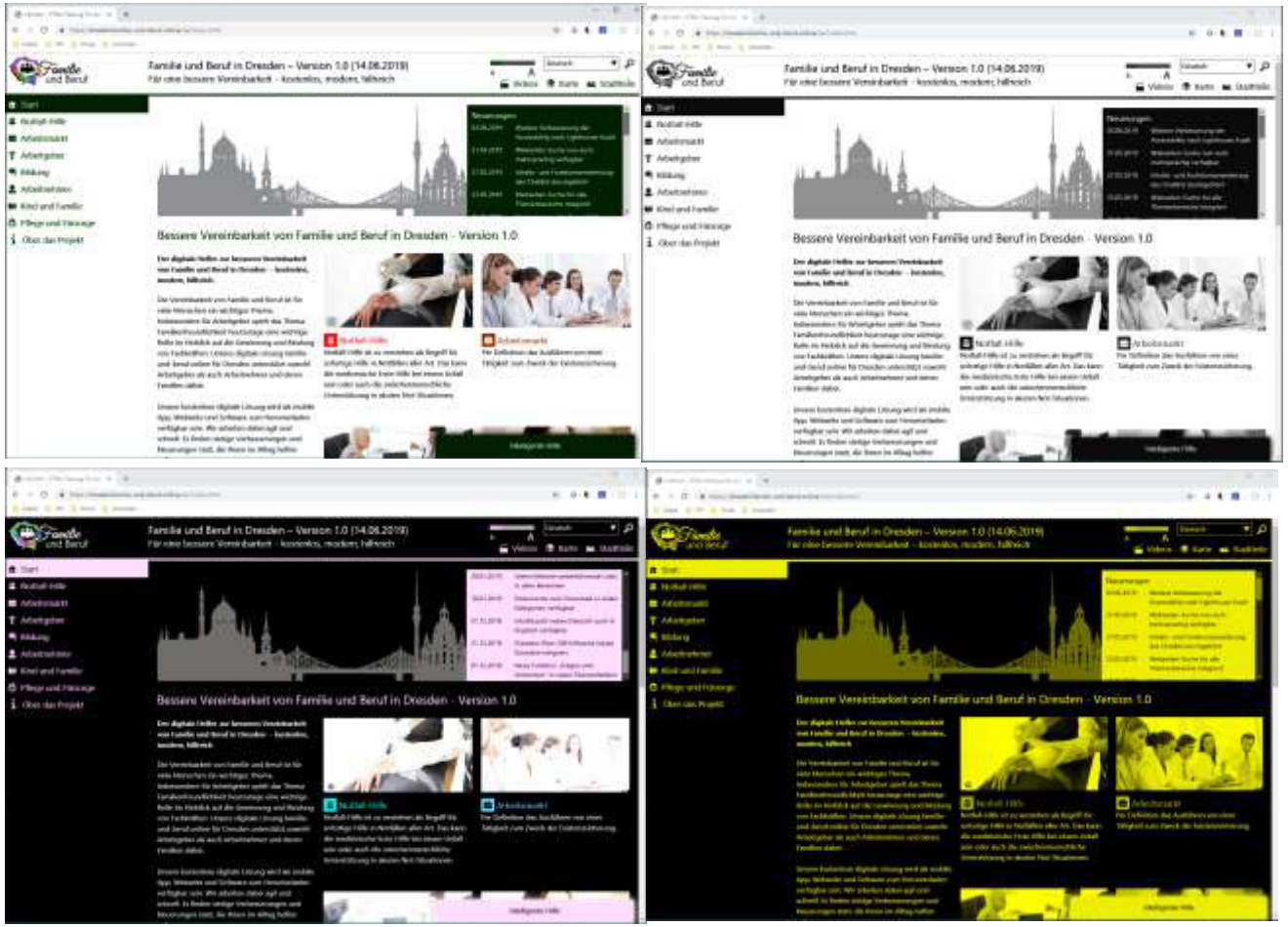
- The AD should also contain jump marks from the text to the video.
- AD must be preserved during transmission and conversion
- Controls for subtitles and audio description of images
- Settings for subtitles and audio description on the same interaction level as play, pause, volume

Extra rules from WCAG

User-defined settings

These browser settings must be taken into account if the user has set them individually:

- Units of measurement
- Colours (e.g. dark mode)
- Contrasts
- Fonts / font sizes
- Display of the focus cursor



Extra rules from WCAG

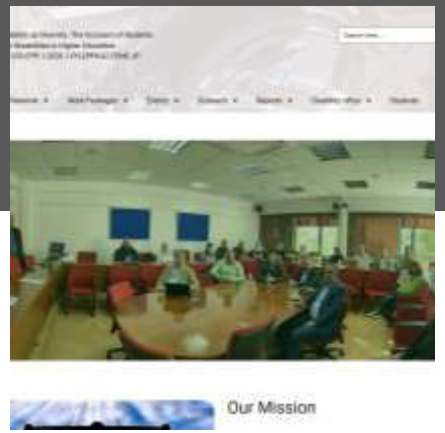
Authoring tools

- Accessible content creation
- Preservation of accessibility information during transformation
- Accessible repair wizard
- Accessible templates

Documentation and support

- Docu of special accessibility tools
- Accessibility documentation
- Technical support
- Effective communication
- Documentation provided by support

Check out your own BITV state



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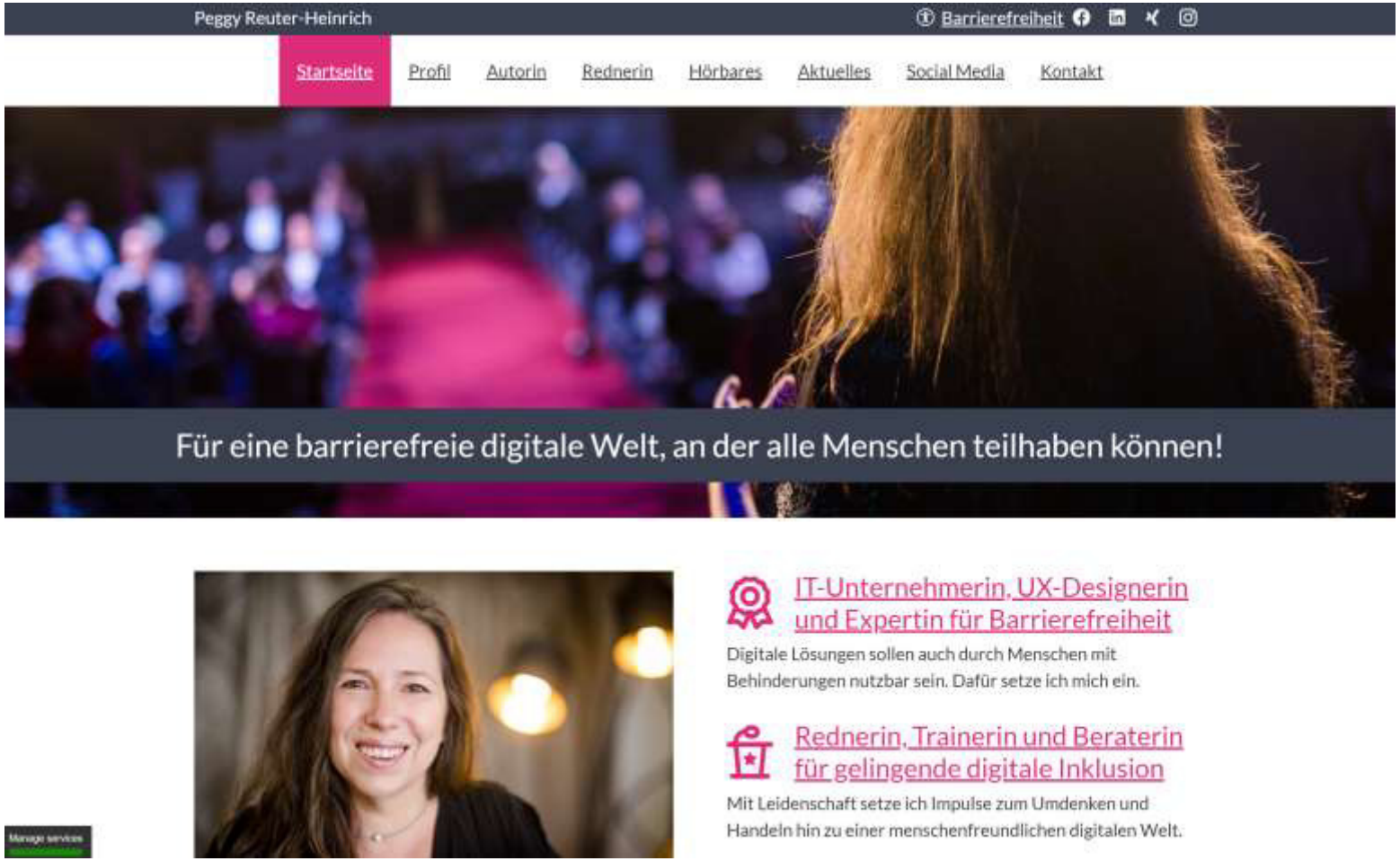
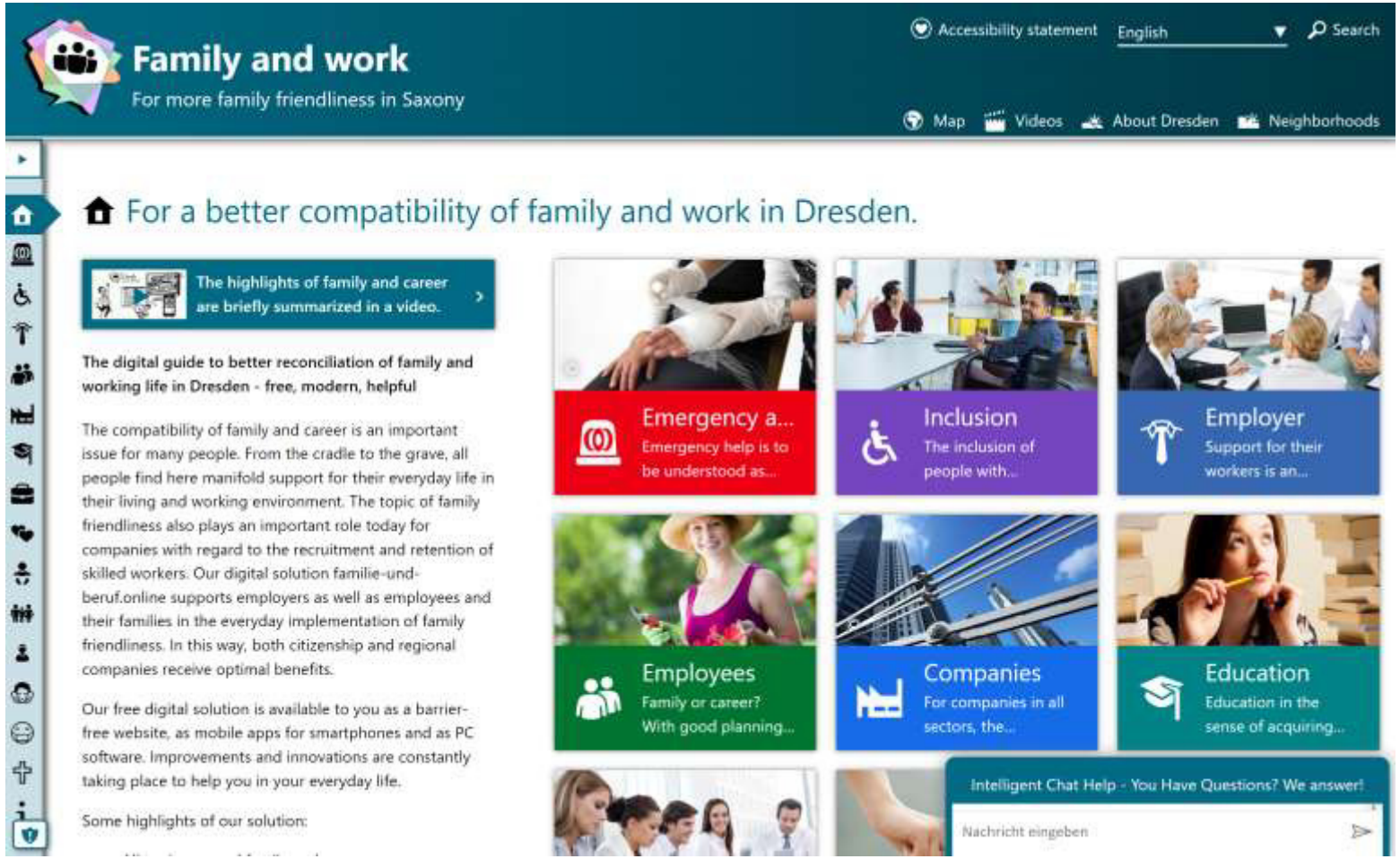
www.peggy-reuter-heinrich.net



Check it out: Sachsen.familie-und-beruf.online



Check it out: https://edu4all.psdpal.org/

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Our Mission

Check it out:
https://www.ptcdb.edu.ps/ar/

Implementing digital accessibility

Implementation of digital accessibility

Planning, design, content, development

Design for all und Universal Design

Easy language = better understanding

Multilingualism as a part of accessibility

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Implementation of digital accessibility

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Possibilities of barrier reduction through, with and in IT solutions

Assistive technologies

Smart Home / IoT

AR and VR as a bridge

Image recognition

AI as helper

Gesture control

Video with subtitles

Standards in Software

Accessibility as basics

Free choice of input

Voice input

Voice output

Alternative UIs

Inclusive design

UI automation

Visual language

Image to OCR

Keyboard control

Engaged in design, devepment and writing for more accessibility in the digital world

- Design und UX
- Development
- Training & Coaching
- Mobile Lösungen

The Human Being in the center of all activities for a userfriendly digital world

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Services for good UX in
IT solutions of any kind …

… served fully accessible with a
heart for people with disabilities.

Accessibiliy as an overall services for all digital solutions

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UX-DESIGN
Usability for all
Inclusive Design

DEVELOPMENT
Accessible Development
Technical Counsulting

TRAINING
Workshops and Trainings
Online Course

CONDISYS
Our CMS with accessibility

BITV-Tests
Effitive, precise and conform

Accessbility is the next level of all services for you

EXPLAINING VIDEOS
Helpful + accessible

OUR SOCIAL PLATTFORMS
accessible, social, helpful integrativ

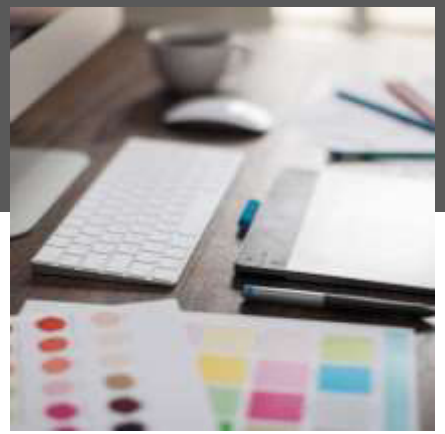
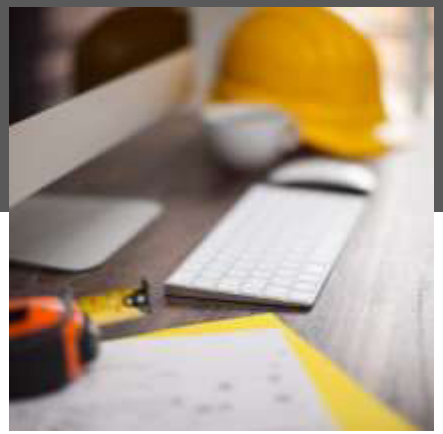
EASY LANGUAGE
Copywriting and Translations

INCLUSION
Common Purpuse of our NGO

Successful inclusion by accessibility in the digital world

it hilft
Gemeinnützige GmbH
für sozial gerechte IT-Projekte

Planning, design, content, development

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For decision makers

- Expansion of the target group and customer group as customers
- Legal conformity as quality
- Attracting public clients and EU tenders
- Living Diversity and Diversity
- Opportunities to attract skilled workers
- Social Responsitibility Compliance

For the right concept

- Conceptualists and usability engineers
- Usability for all
- Thinking ahead conceptually
- Include disabled people in the context of use as a user group
- Transfer dialogue principles
- Conduct usability tests also with an extended user group

For authors and writers

- Responsibility for the word
- Clear target group expansion
- Important: Less is more!
- Use of simple language
- Thinking in stories
- Working with concrete examples
- Create texts suitable for the media

For designers

- Principles of inclusive design
- Outline directly in interaction design
- Knowing platform standards
- Responsive UI designs
- Add scenarios to prototypes
- Revise style guides
- Resolve visual language correctly

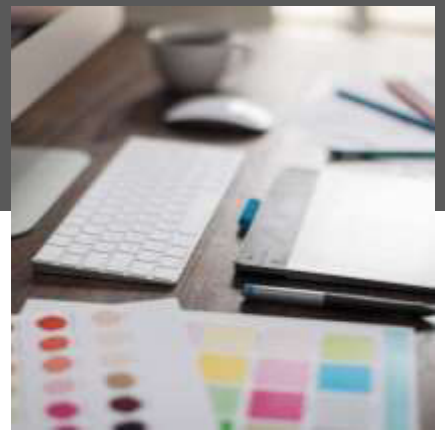
For developers

- Identify technical opportunities
- Integrate assistive technologies
- Code in a platform-compliant way
- Follow Accessibility Guideline
- Use UI automation
- Development quality as a basis
- Prepare "accessibility" certification

For quality assurance

- For testers at the quality gates
- Testing along requirements
- Ensuring UI quality
- Carrying out automated tests
- Testing against BITV criteria
- Excel file as testing documention
- Making recommendations
- Initiate corrections
- Creating a preliminary test report

Universal Design as Design for all



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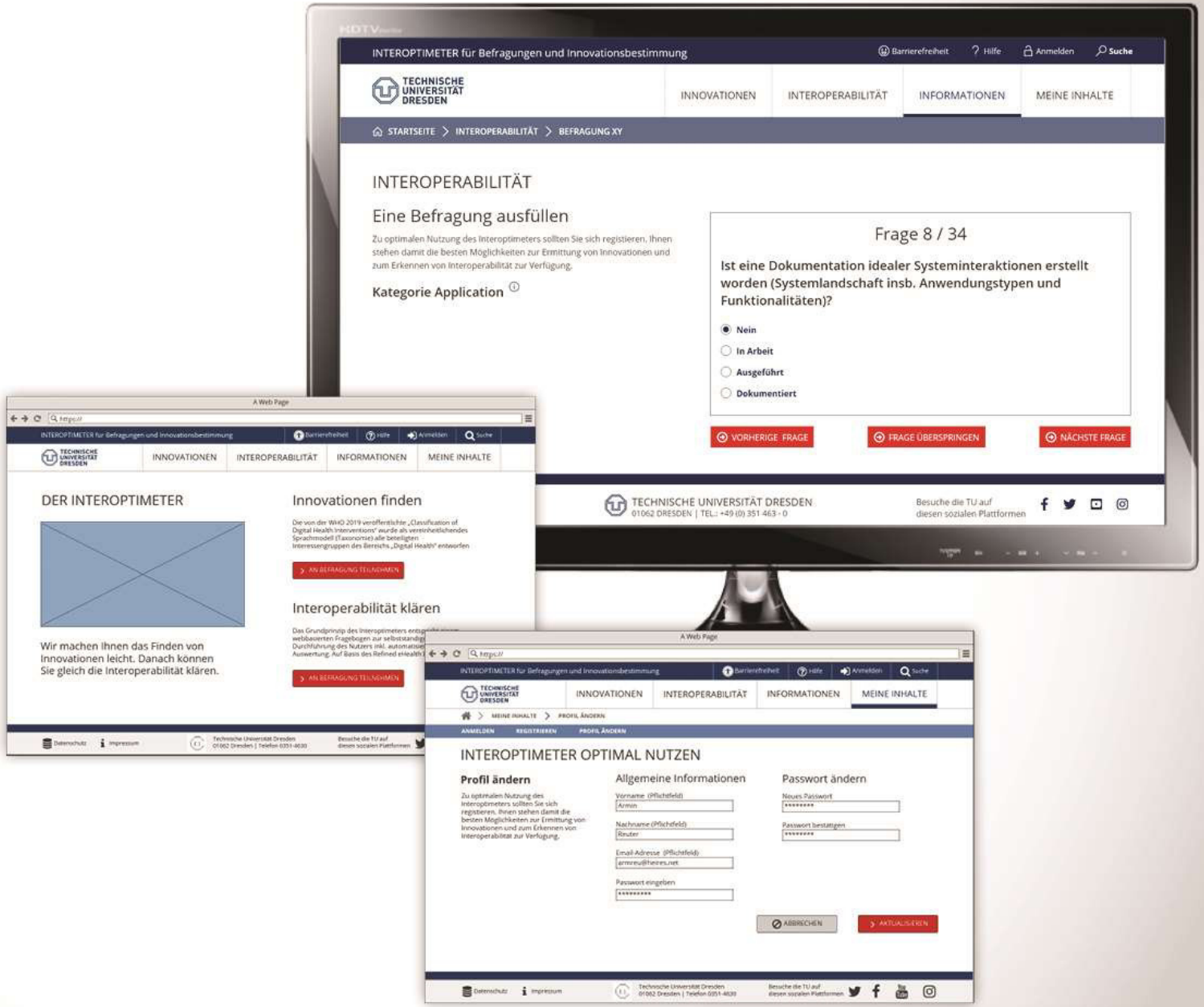
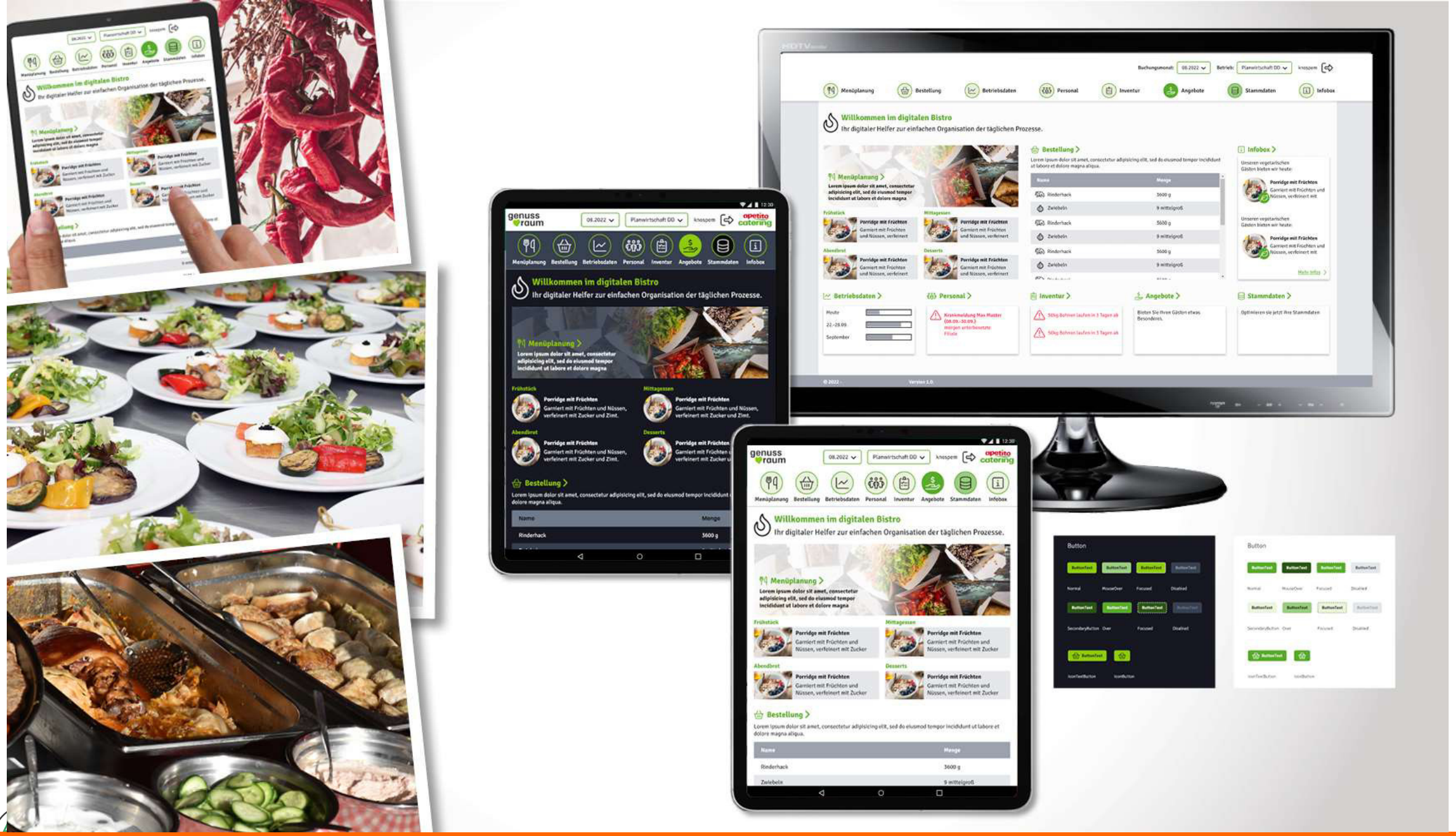
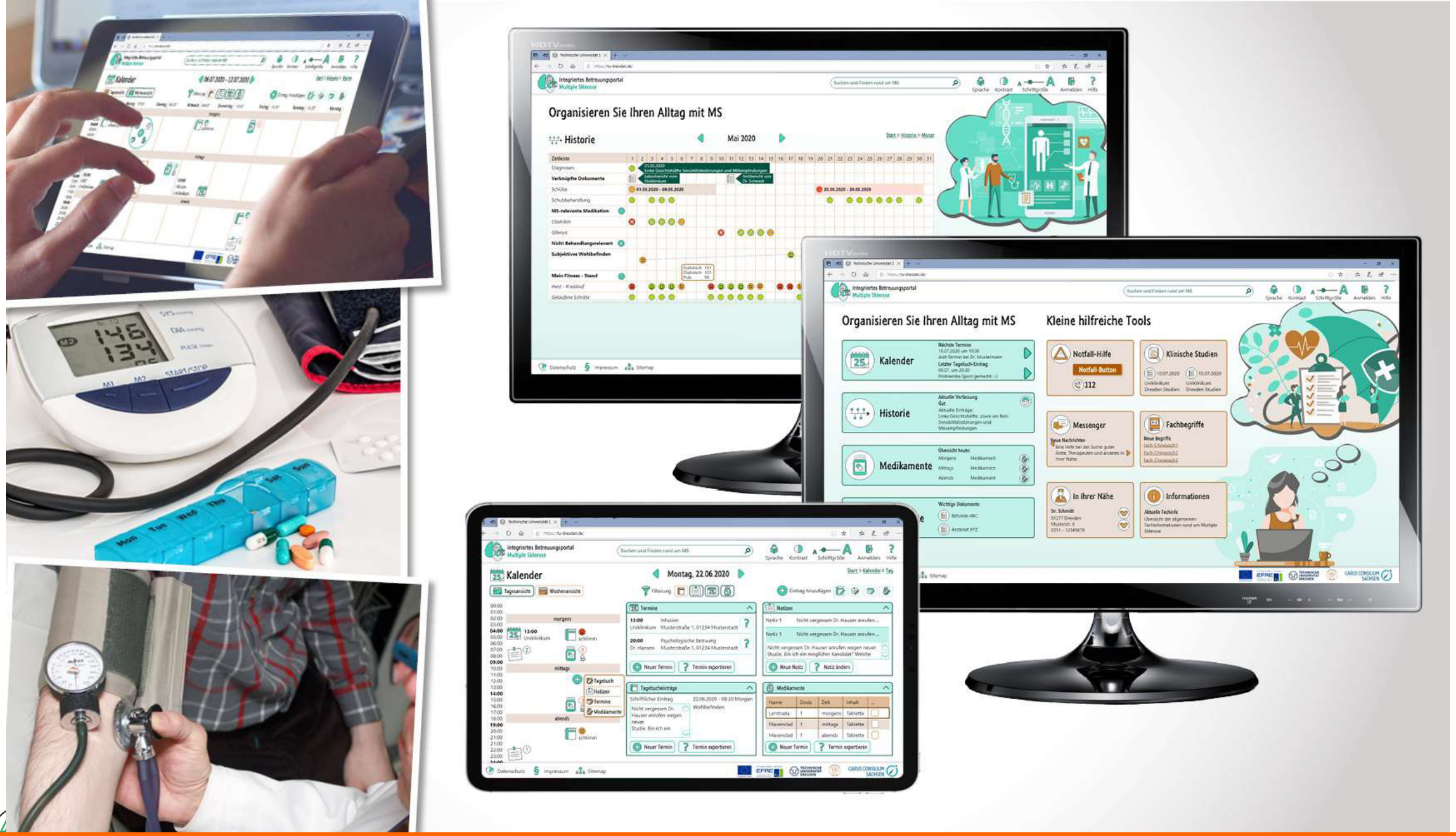


Referenz-Projekt mit Faktor Barrierefreiheit: Umfrage-Plattform für die TU Dresden

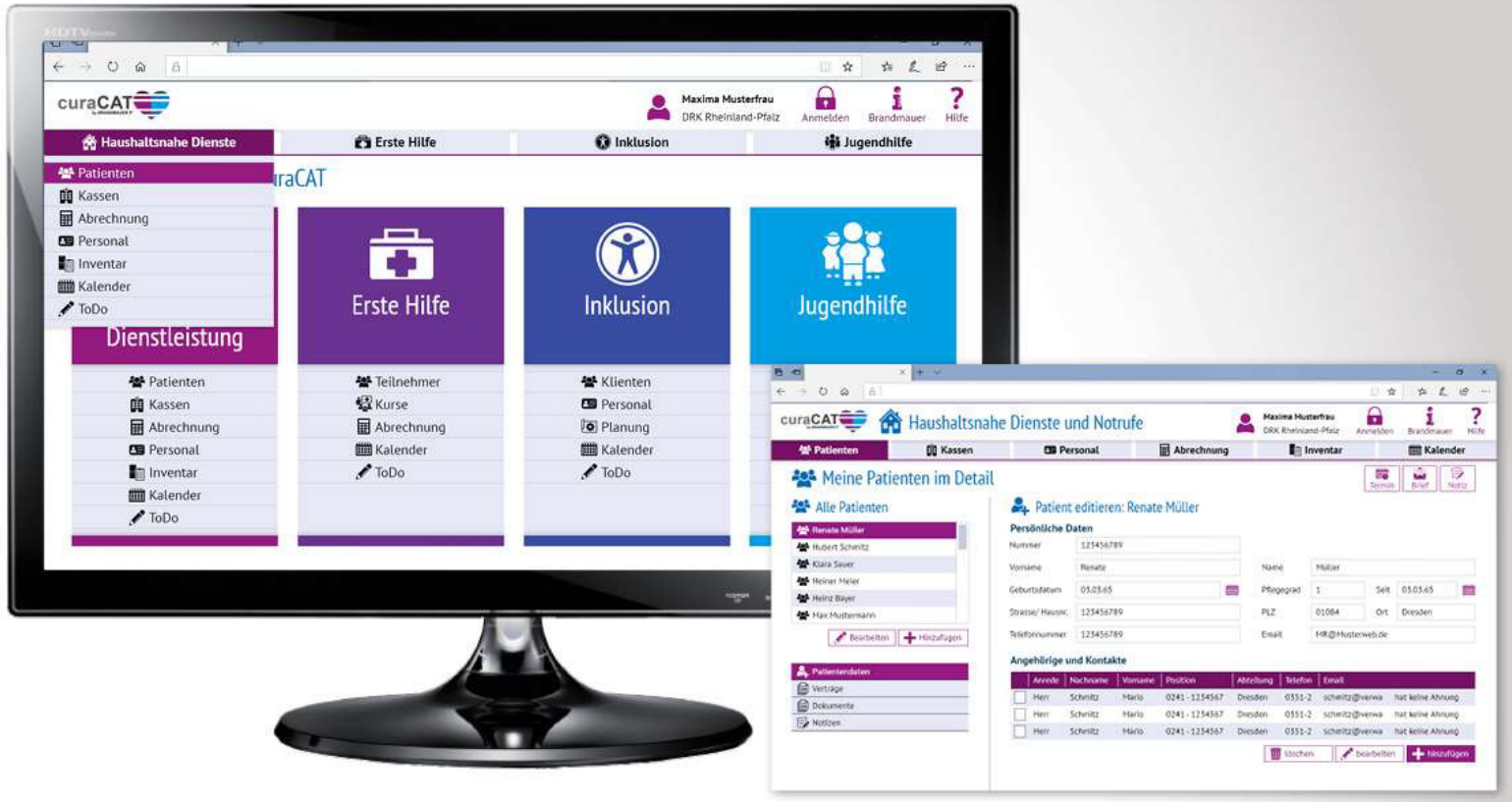
Referenz-Projekt mit Faktor Barrierefreiheit: Zeiterfassung für die Deutsche Bahn



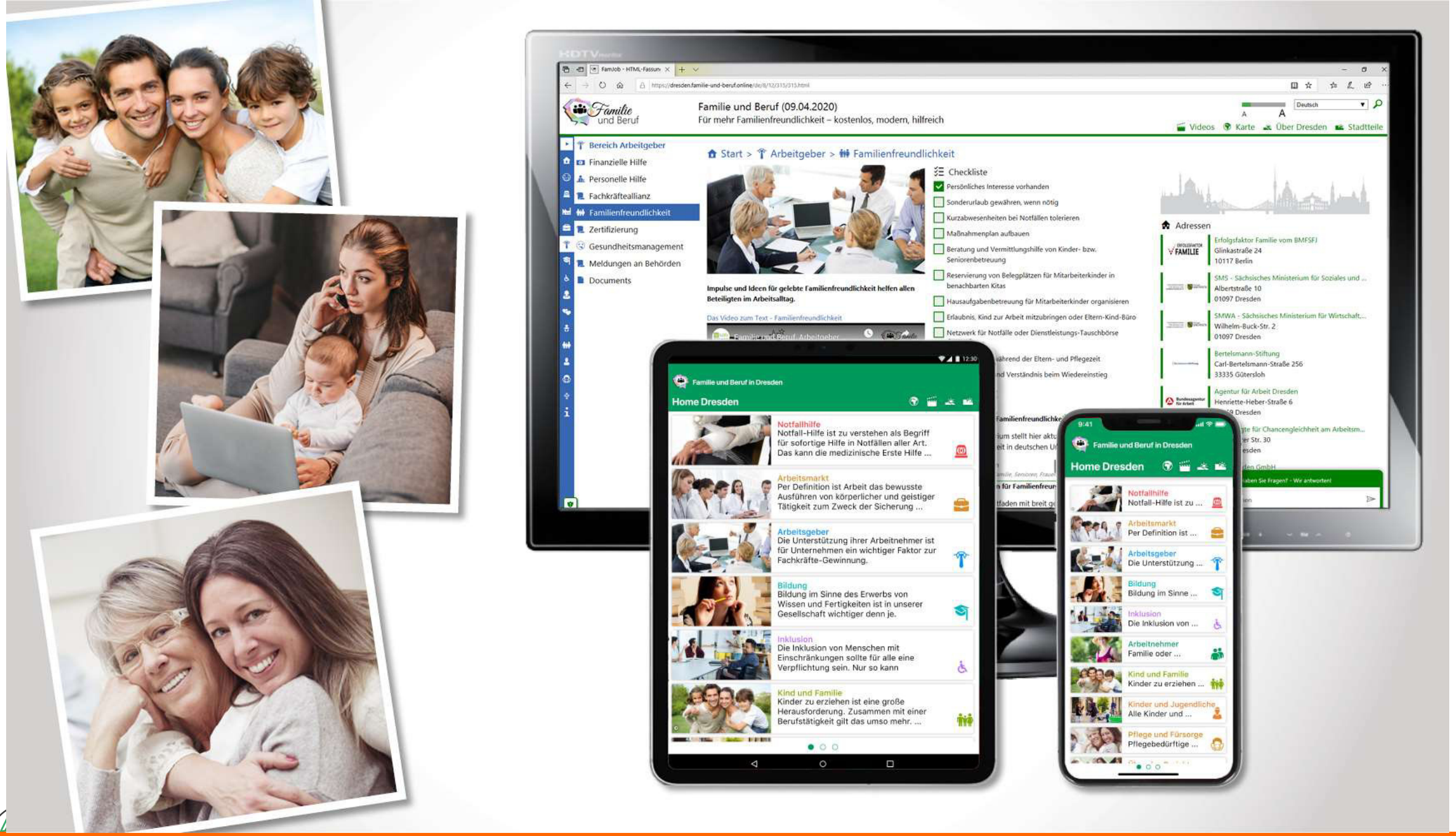
Referenz-Projekt mit Faktor Barrierefreiheit: Zugänglichkeit in der Gastronomie



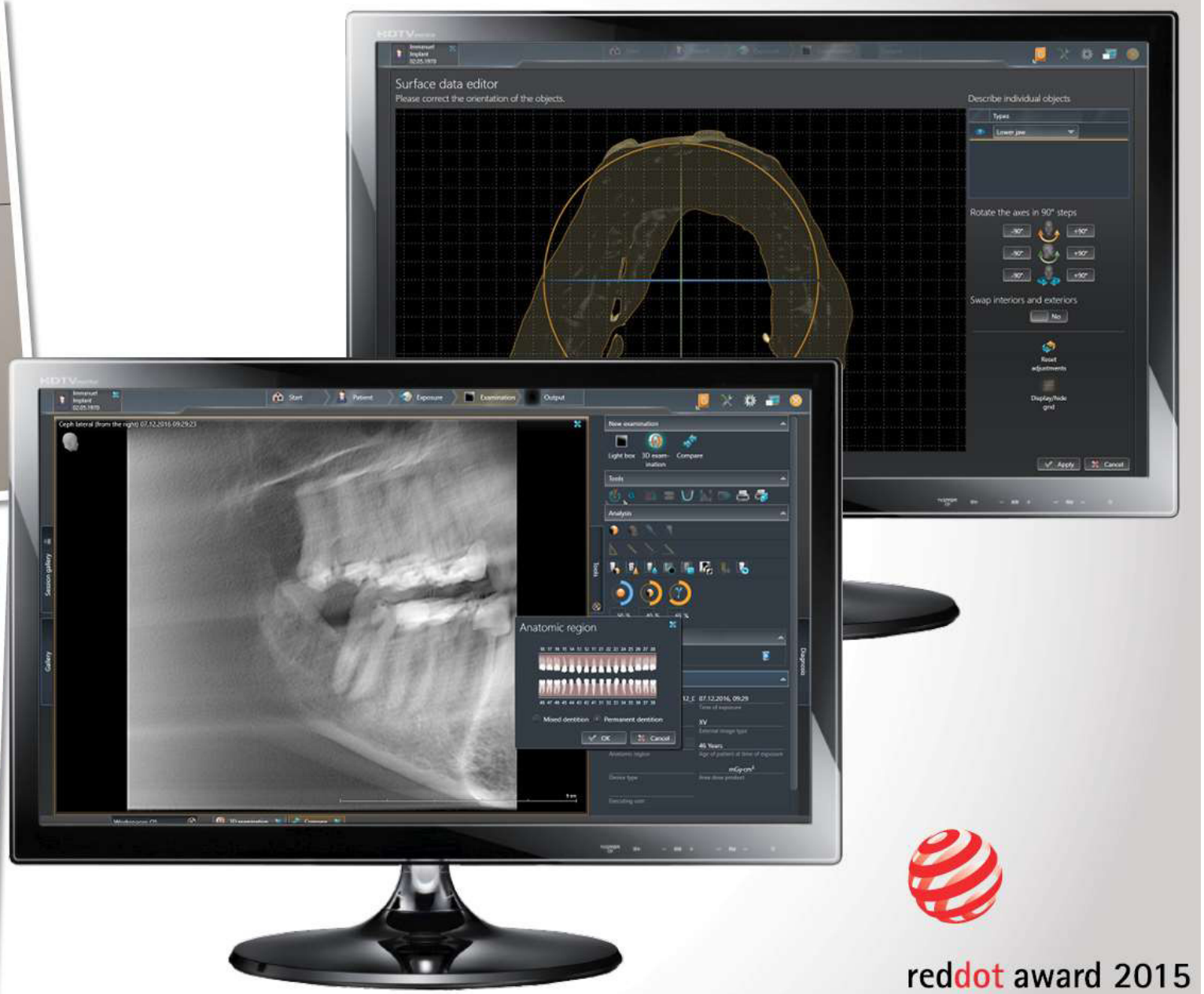
Referenz-Projekt mit Faktor Barrierefreiheit: Plattform für MS-Patienten



Referenz-Projekt mit Faktor Barrierefreiheit: Verwaltungssoftware für Sozialunternehmen



Referenz-Projekt mit Faktor Barrierefreiheit: Plattform zur Vereinbarkeit von Familie und Beruf



reddot award 2015
best of the best

Referenz-Projekt mit Faktor Barrierefreiheit: Software für bildgebende Systeme in der Dental-Medizin

Our Engagement with helpful platforms in times of crises

Familie und Beruf

www.familie-und-beruf.online

Welcome App Germany

www.welcome-app-concept.de

Tipps für alle Lebenslagen und Unternehmensbelange in der Corona-Hilfe

First Class UX
= Usability for all

- Divercity in the user groups
- Interaction Design and usage flow
- Prototypes for all sences
- 7 magic dialog principles
- Usability Tests with disabled people
- BITV Tests as a part of usability test

The context of use

Organisation / Environment

Work equipment

Interactive system

Users

Tasks

Dialogue principles as usability 4 all

First class UX
= Universal Design for all

- Beauty of simple design
- Clear Color Concept
- Modern clear typographie
- According to the standards
- Responsive UI-Design
- Strong Pictures and illustrations
- Clever Design Template
- Technical Styleguides

Mapping the interaction via sketches

Accessible and system-compatible UI design

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Participation through visual language approaches

- For Illiterate people, people with language barriers as well as people with visual impairments lack access to important information.
- Simple language and visual language
- Attractive with animations and music
- Sketchy easy explanatory videos
- Audible with subtitles and speakers
- Also help for people learning German

12 Questions on UX-Design and accessibility answered

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- Why are we actually talking about "UX design and accessibility" today?
- What are the advantages of an accessible implementation of IT solutions?
- As a usability engineer, how do you include users with disabilities in concepts?
- What was a concrete key experience that led you to the topic of accessibility?
- How do you deal with people with disabilities as users in usability engineering?
- How can usability engineers put themselves in the shoes of people with disabilities?
- In your experience, what makes a good inclusive or universal UI design?
- To what extent is an inclusive UI design different for websites, software or apps?
- When you are given the task of designing an inclusive website, how do you go about it?
- What are useful steps to take an old IT solution towards an inclusive design?
- What are the absolute no-goes in design and why?
- What challenges do you see in this topic of accessibility and social media?

Only Universal Design is First class UX-Design

Many people can supposedly make things look a bit pretty.
But is that enough?

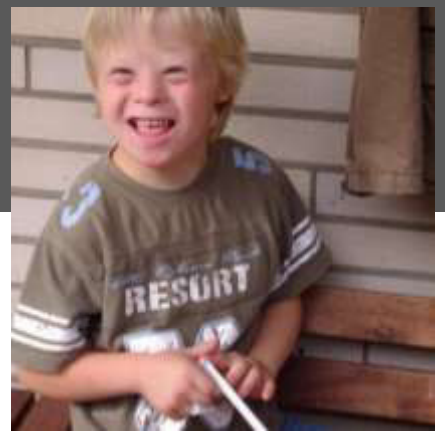
Only UX design by professionals is really convincing. Good UX design has been proven to increase the sales of your products. Products with a stylish UI design and good usability have clear advantages. They sell better when design inspires at first sight. With a great user experience, a sustainable use of your digital solutions is ensured right away. And that also ensures more customers for you through satisfied users. UX design is therefore an investment that pays off several times over!

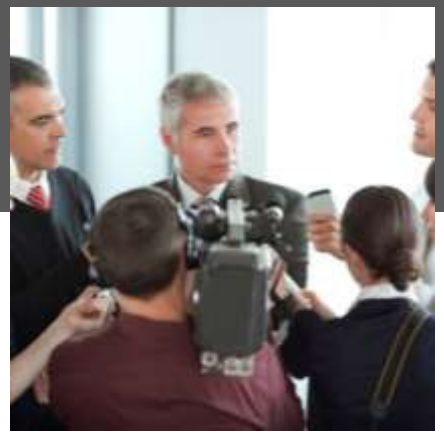
Our professional UX support for your digital products:
- UI design for apps, software and websites
- Usability / usability according to ISO 9241
- Modern prototypes for fast innovations
- UI implementation for software, apps, websites
- Accessible universal UI-design according to BITV

With many years of experience from over 250 design projects for many enthusiastic customers, we can justifiably say: We are truely UX professionals. So save yourself from expensive experiments and rather ask HeiReS right away.

Take a look here and get a free UX consultation with us right away.

Easy language means better understanding





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For whom is Easy Language?

- For people with learning difficulties
- For the 7 million functionally illiterate people
- For people with cognitive and language impairment
- For the hearing impaired
- For inclusion as a society

Language as a benefit to many

- For senior citizens / dementia patients
- For people with a migration background
- For people in language acquisition
- For people with brain damage
- For people with hearing impairment
- For children and young people
- For learners and frequent readers
- For employers and entrepreneurs
- For the public sector as a duty

How to introduce easy language?

- Remember: "Simple is better"
- Clarify target groups
- Emphasis the importance
- Remind of participation laws
- Illiterate people do not stand out
- Three categories of language
- Easy language = A1
- Simple language = A2
- Civic language = A3
- Naturalisation test = B1

Easy language:
Word choice and formatting

- Prefer short words
  Maximum 13 letters
- Use simple words e. g. house, dog
- Use familiar words e.g. town hall instead of municipal authority, bus instead of public transport
- Use active verb e. g. We are going for a walk. Heat the water.
- Hyphenate long words e. g. Unemployment money application
- Explain heavy words e. g.
  An app is a small computer program for your mobile phone.

Easy language: Word choice and formatting

- Arabic numbers as digits instead of words or blends.
  e.g. 12 instead of twelve
- For date & time according to a recognised standard
  e.g. 16:15 or 10.07.2020
- Avoid special characters
  e.g. paragraph instead of §
- Use only common shortcuts or explain the abbreviations on place
- Simplified masculine form instead of *innen / gendering e.g.
  The user works on the computer
  (instead of Der/die Nutzer*in)
- Prefer gender-neutral words

Easy language: Structure and wording

- Personal pronunciation with the polite you, e.g. Take the pot. Fill it with water.
- Positive language e.g. That's good instead of That's not bad.
- Active words / phrasing (instead of passive and subjunctive)
  e.g. You can achieve the goal.
- Avoid genitive
  e.g. The son of the farmer better the the farmer's son
- Same words for same things
  e.g. always save instead of store, save or save
- Repeat important words
  e.g. Easy language

Easy language: Structure and wording

- Einfache, klare Schrift (serifenlos)
  z. B. Arial, Segoe, Gill Sans
- Große gut lesbare Schrift
  Mindestens 14 Punkt, besser größer.
  Hier sind es 28 Punkt.
- Text linksbündig ausrichten
  So wie hier vorgemacht.
  So besser nicht
- 1,5facher Zeilenabstand
  z. B. Zeile 1
  z. B. Zeile 2
- Klares und einfaches Layout
  z. b. wie hier in zwei Spalten
- Gute Nutzung des Raumes
  z. B. Wie hier nicht zu wenig,
  nicht zu viel.

Easy language: Typesetting and design

- High-contrast black on white
- No photos in the background
- No confusing decoration
- Use pictures as a supplement
- Emphasis important words, e.g. by bold print

Die Aufgaben der Bundes-Agentur für Arbeit

Alle Menschen in Deutschland

sollen eine **Arbeit** haben.

Darum gibt es die **Bundes-Agentur für Arbe**

Die Bundes-Agentur für Arbeit ist wichtig fü

den **Arbeits-Markt** in Deutschland.

Die Bundes-Agentur für Arbeit hilft allen

Menschen in Deutschland.

Zum Beispiel:

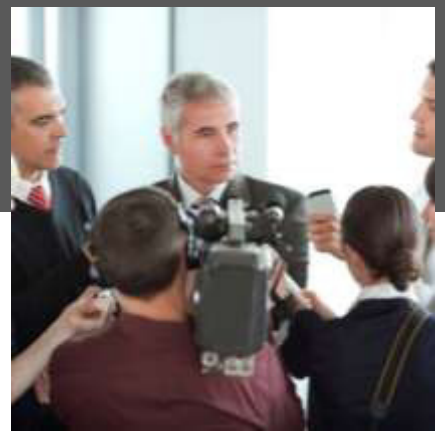
Wenn sie eine Arbeit suchen.

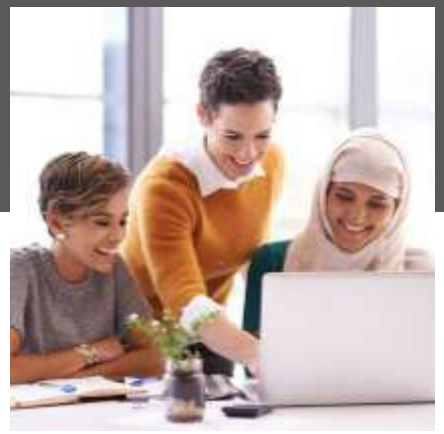
Oder wenn sie ihre Arbeit verlieren.

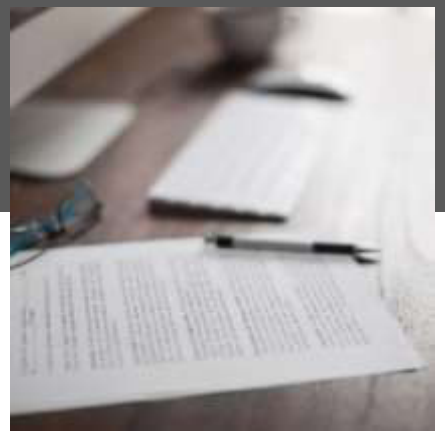
Die Bundes-Agentur für Arbeit

hilft auch den **Arbeit-Gebern**.

Multilingualism as a part of accessibility







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Understandable for all

Advantages of multilingualism

- Understandability for all
- Easy to implement
- Helpful for everyone
- Inclusion instead of integration
- Divercity by languages and origin

References:

- Sachsen.Familie-und-Beruf.online
- deutschland.welcome-app-germany.de

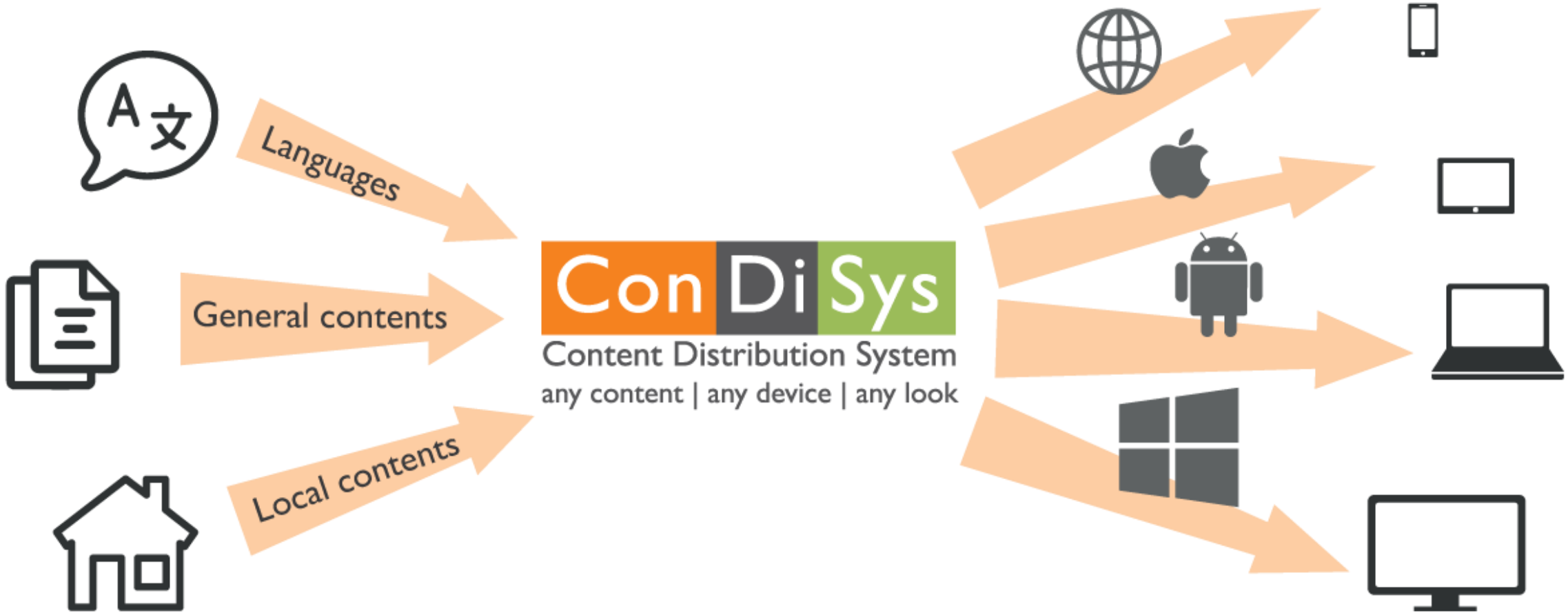
For lived openmindness to the world and successful integration

Welcome App Germany

it hilft
Gemeinnützige GmbH
für sozial gerechte IT-Projekte

Fair opportunities for all in the field of work and society

ConDiSys - the best choice for accessibility: multilingual, multiplatform, multiaccess



Accessible teaching and learning

Working with CMS for websites

Making PDFs accessible with Acrobat

Creating accessible Word documents

Barrier-free PowerPoint presentations

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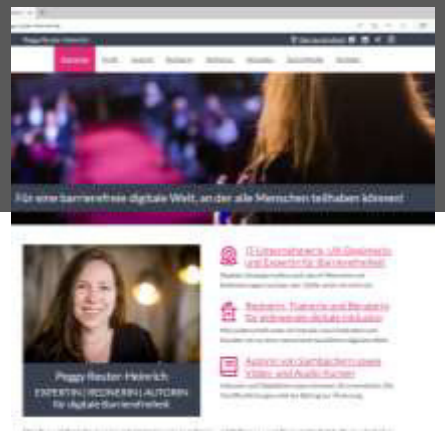
Working with CMS for websites



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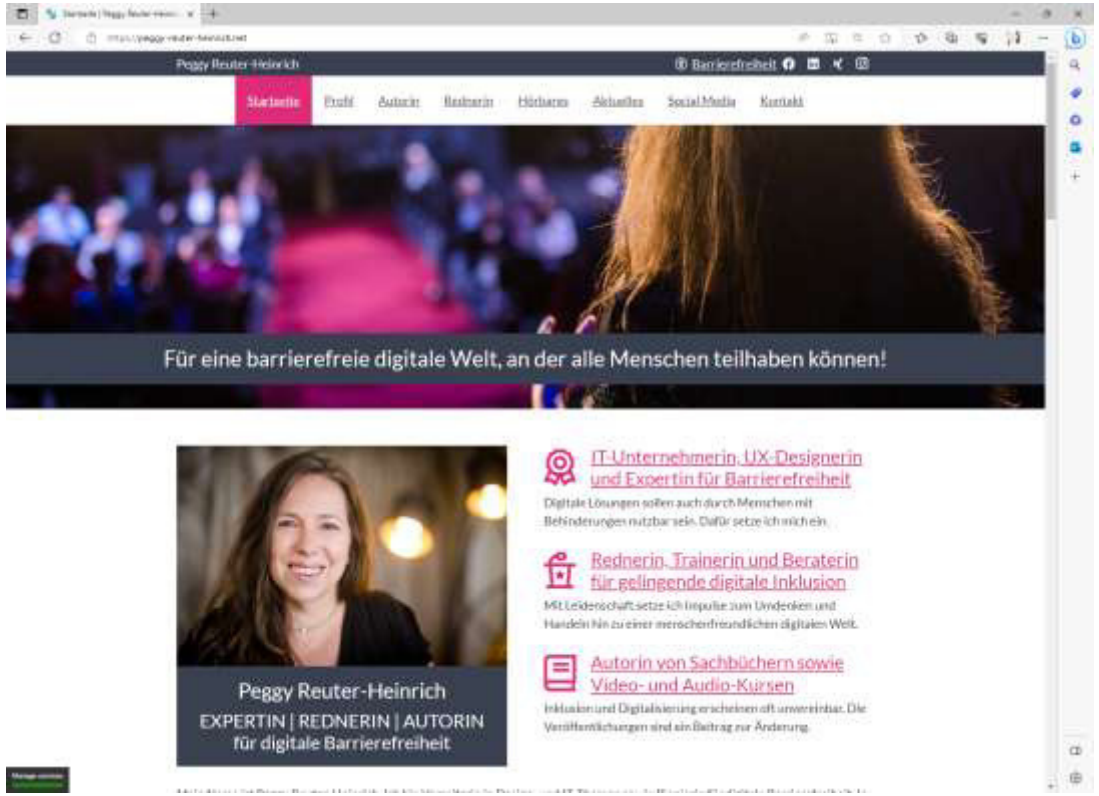
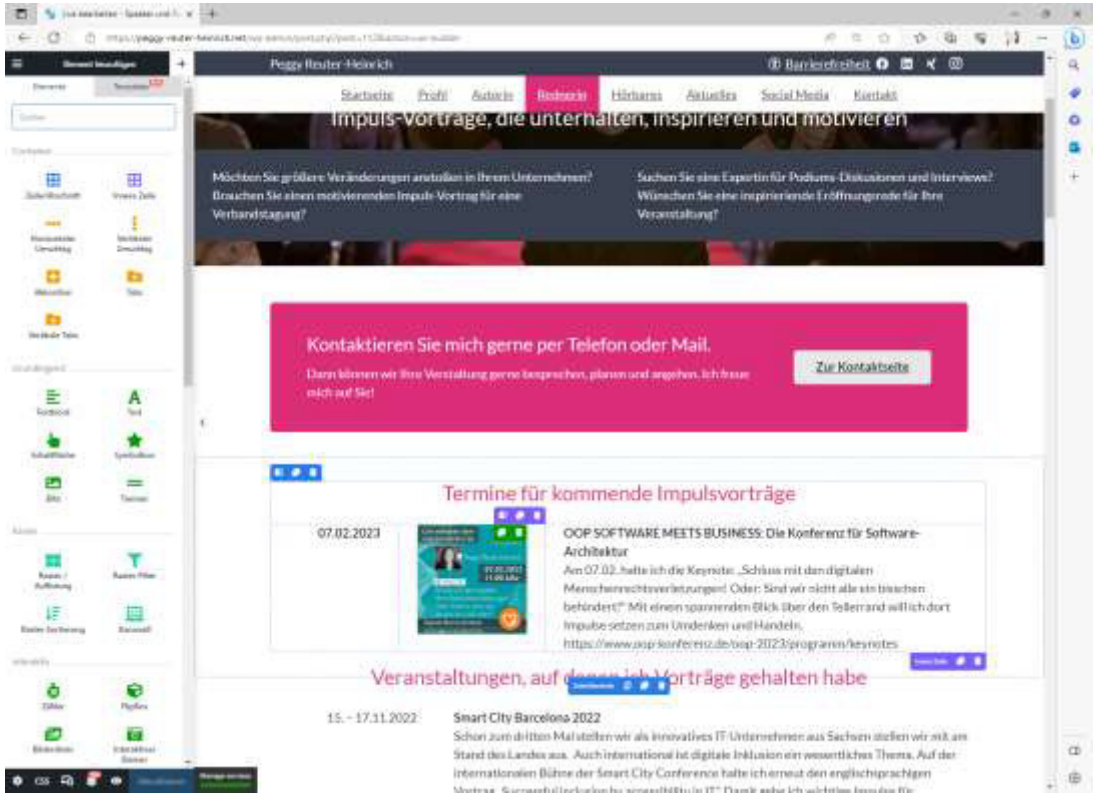
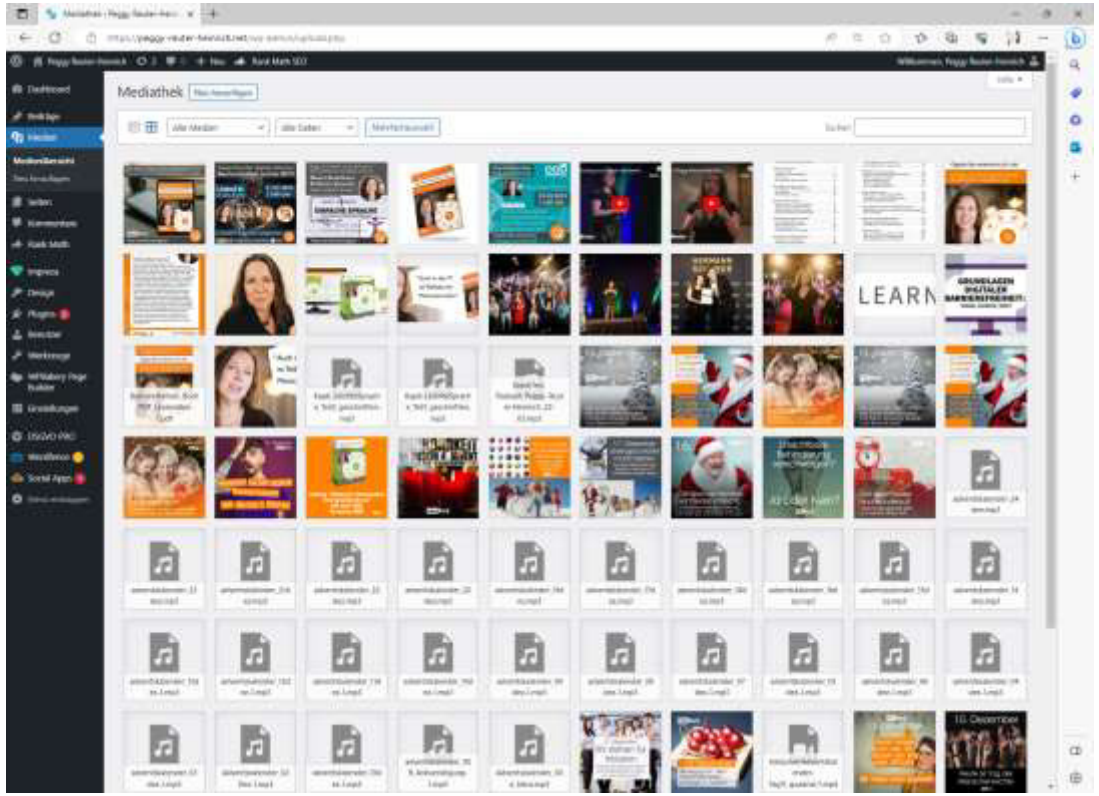
Working with CMS for websites

- Word Press widely used and easy
- Theme selection Focus on accessibility
- Technical adaptation in the background
- Alt-text images via media gallery
- Transcripted Version for Podcast
- Accessible Videos with Youtube
- Complying with HTML elements
- Translations possible via PlugIn
- Don‘t forget the accessibility explanation

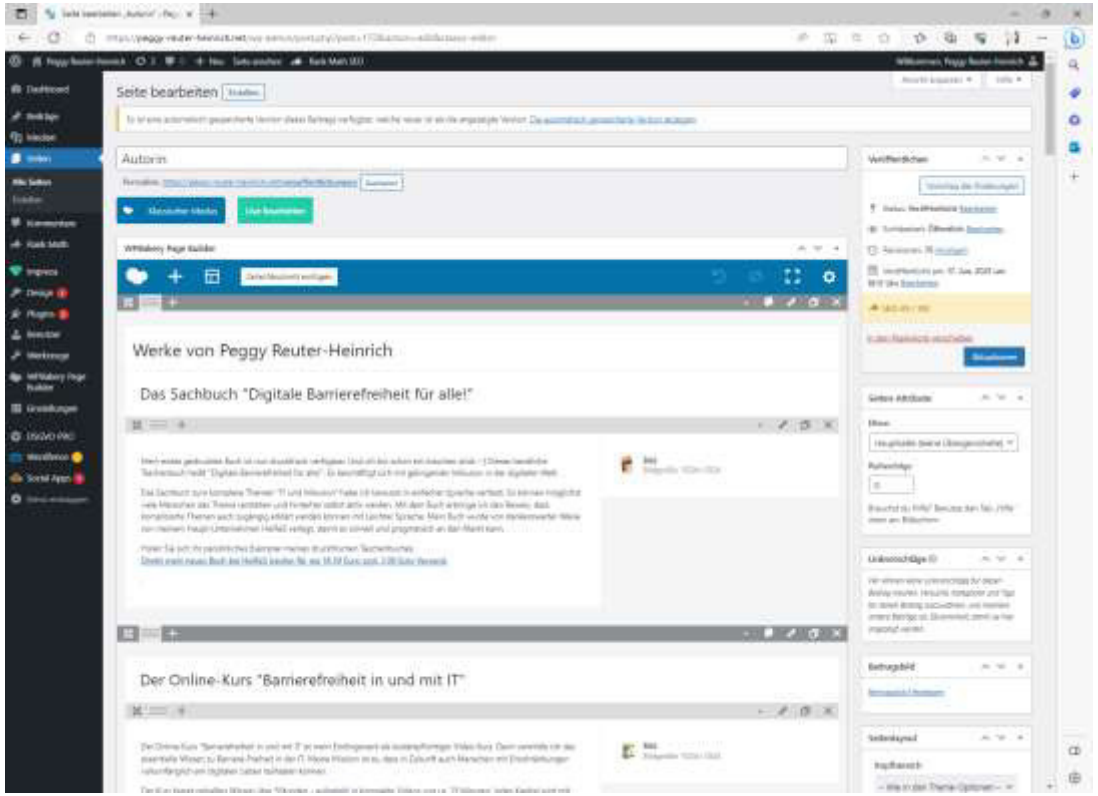


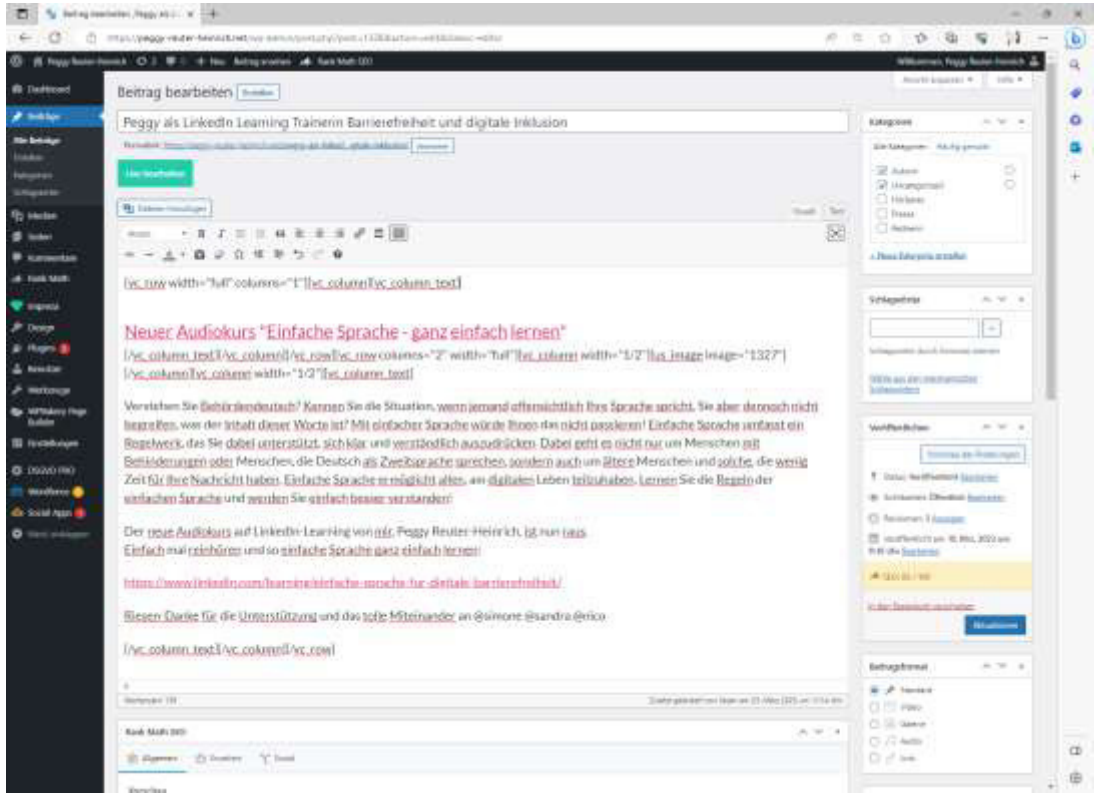
Working with CMS for websites





Working with CMS for websites





Ideas for Designing Documents and PDFs

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Rules for docs and PDFs

Schrifteinstellung:

- Font to background colour contrasts
- Unadorned fonts without serifs
- No typefaces that are too narrow
- Good fonts: e.g. Arial, Verdana, Tahoma, Century Gothic, Helvetica

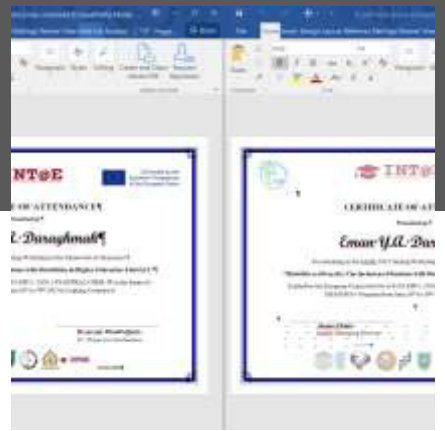
ABCDEFGHIJKLM
NOPQRSTUVWXYZ
abcdefghijklm
nopqrstuvwxyz
0123456789!?#

- Simple understandable language ideal
- Add image information
- Label form elements
- The BITV is also a requirement for PDFs.
- Check PDFs according to BITV.

Observe the basic principles:

- Noticeability
- Understandability
- Usability
- Robustness

Creating accessible Word documents



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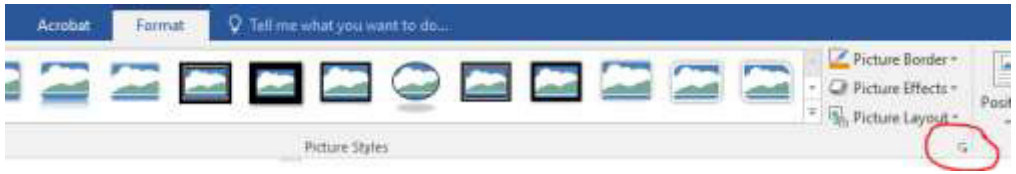
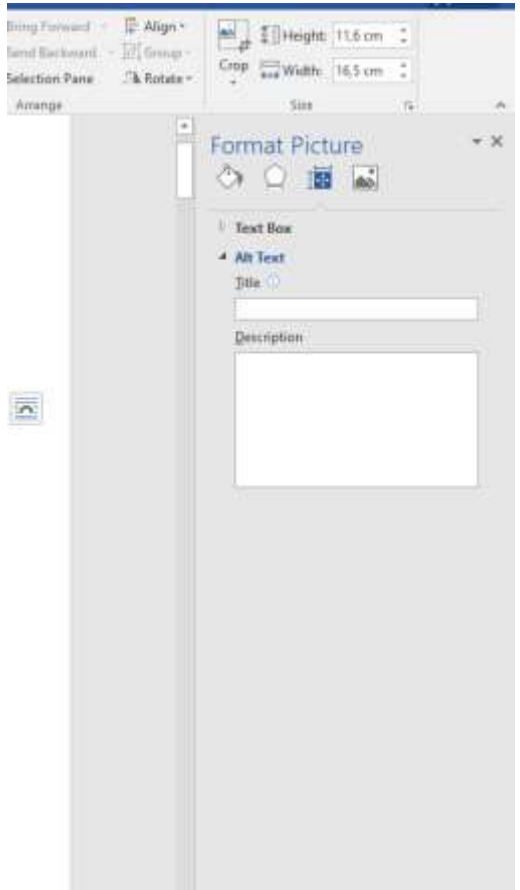
Preparing Accessibility in Word

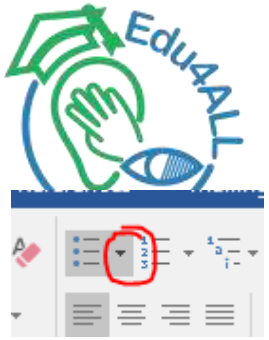
Images Alt Texts

Select image and add alt text in panel



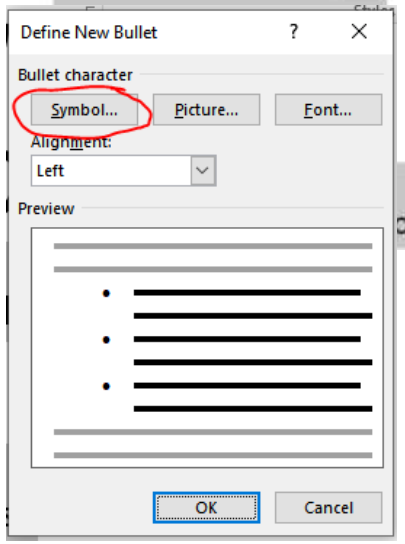


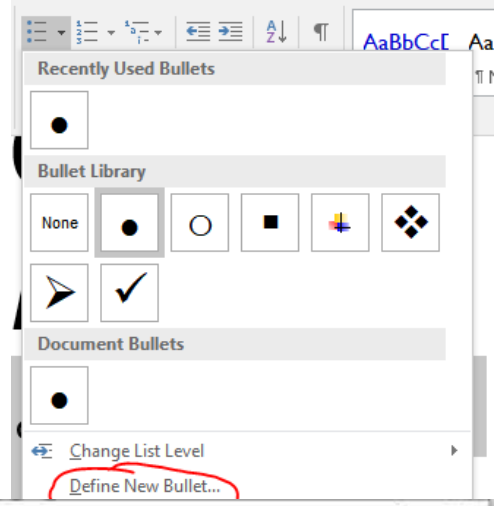
Preparing Accessibility in Word

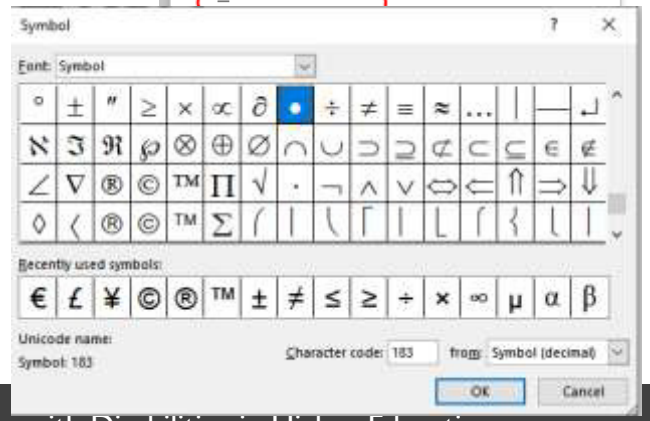


Check text

- Title as title (or in the document settings)
- Hierarchy from heading 1 to 6 (because of the jump marks)
- Adjust contrasts and spacing (line spacing 1.5)
- Check links, link text makes sense? and Quicktext (ScreenTip), this is the alternative text
- Check lists (list function) Unicode characters as bullet points are important, otherwise they may be read out strangely.
- Headings must fit the text



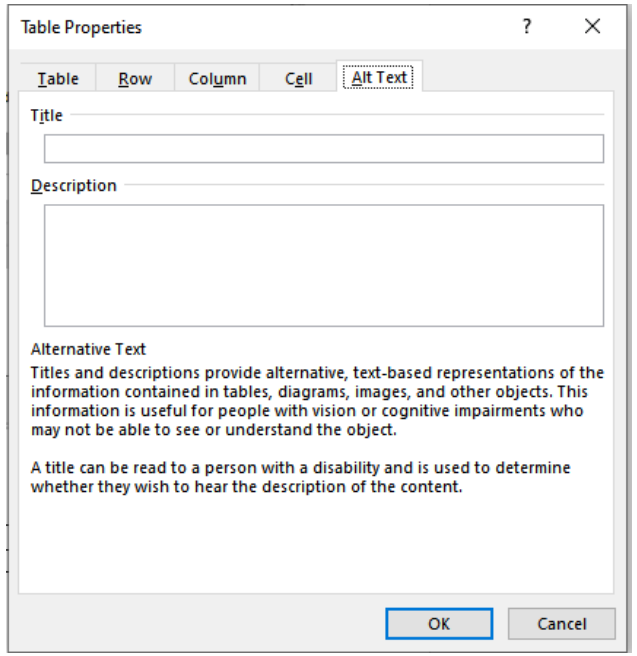


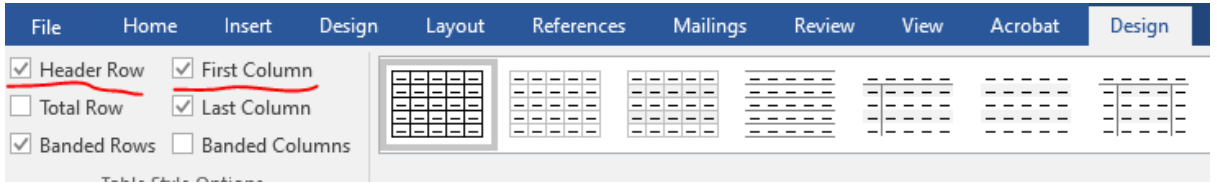


Preparing Accessibility in Word

Check tables

- Add alt text in table properties
- Repeat same header on each page (important for screen readers) Header should be highlighted
- Give charts and tables alt text
- Do not join cells!
- Unless they are complex tables, then you have to rework them in Acrobat.



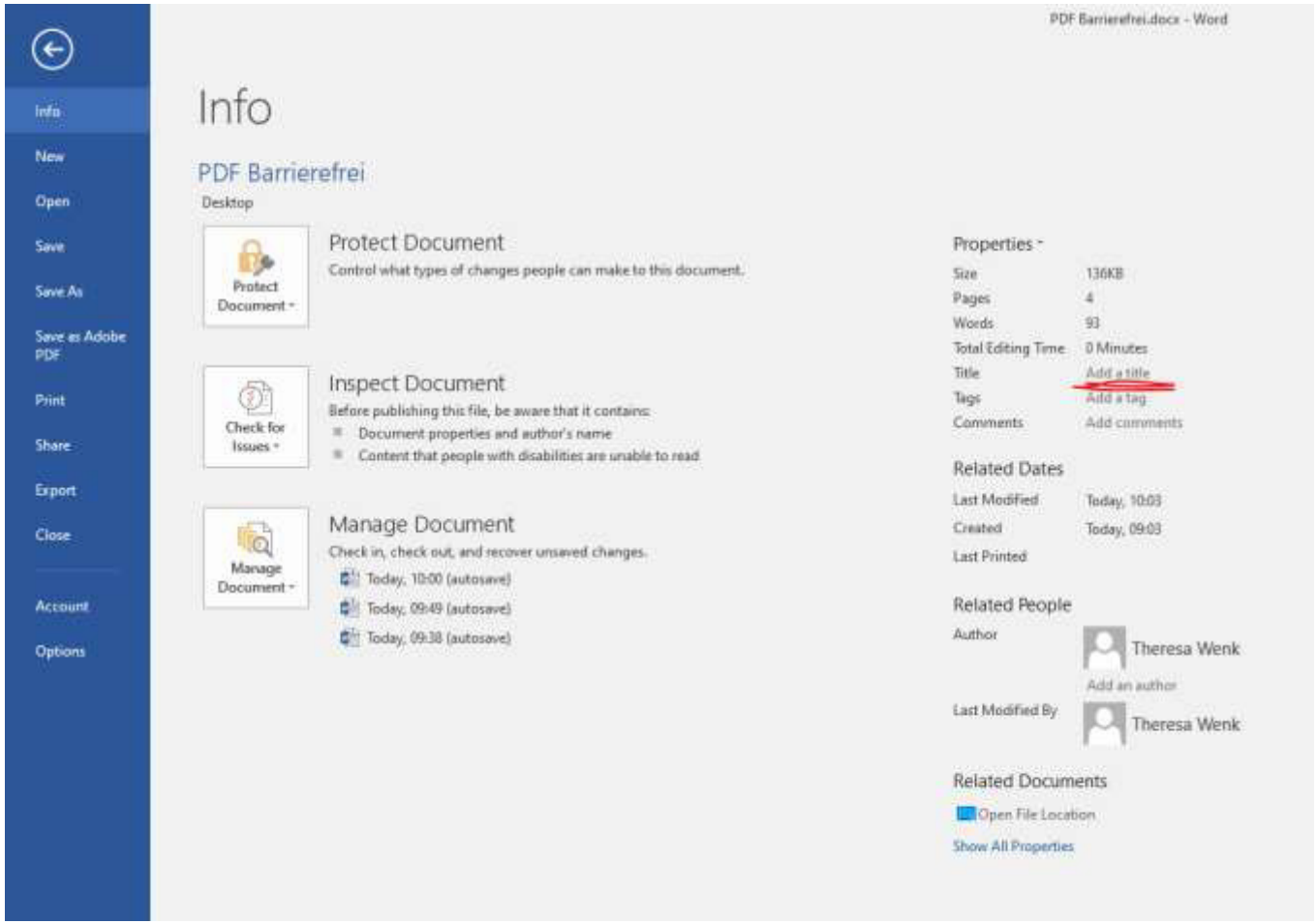


Preparing Accessibility in Word

Metadata

Check title

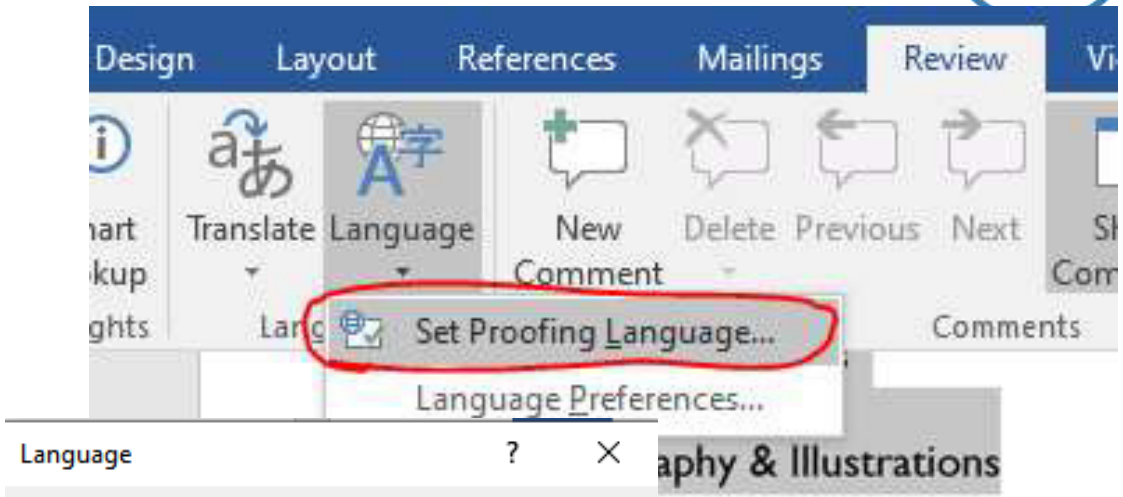
- Set?
- Meaningful?

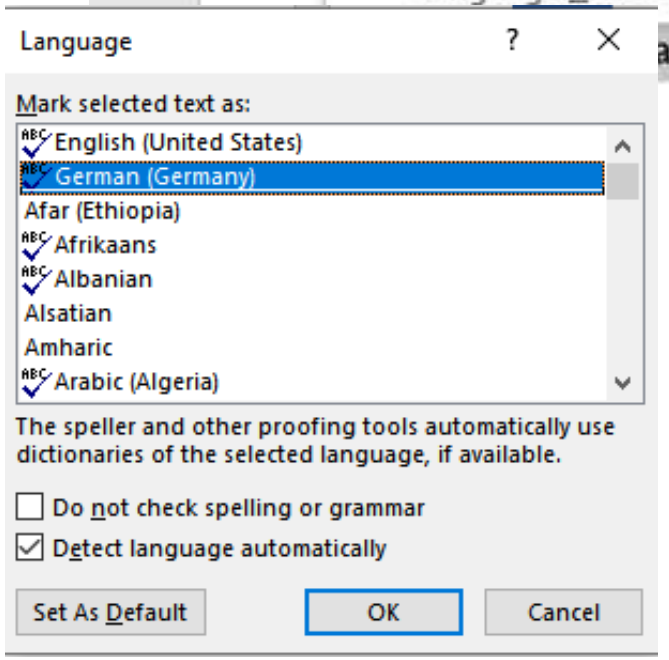


Preparing Accessibility in Word

Specify language

- If text is completely CTRL + A
- If words or text passages are in another language, select the word or phrase and proceed in the same way.
- Check with Adobe Reader, text read out cleanly

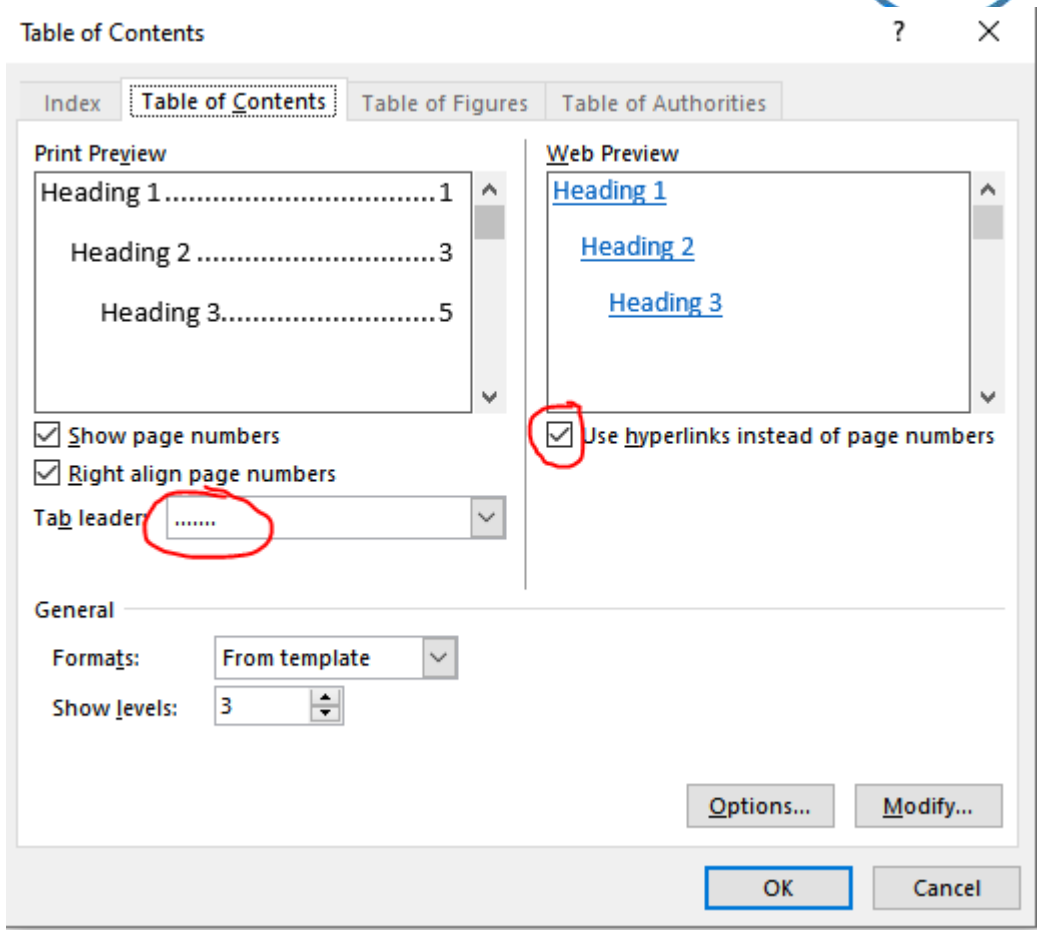


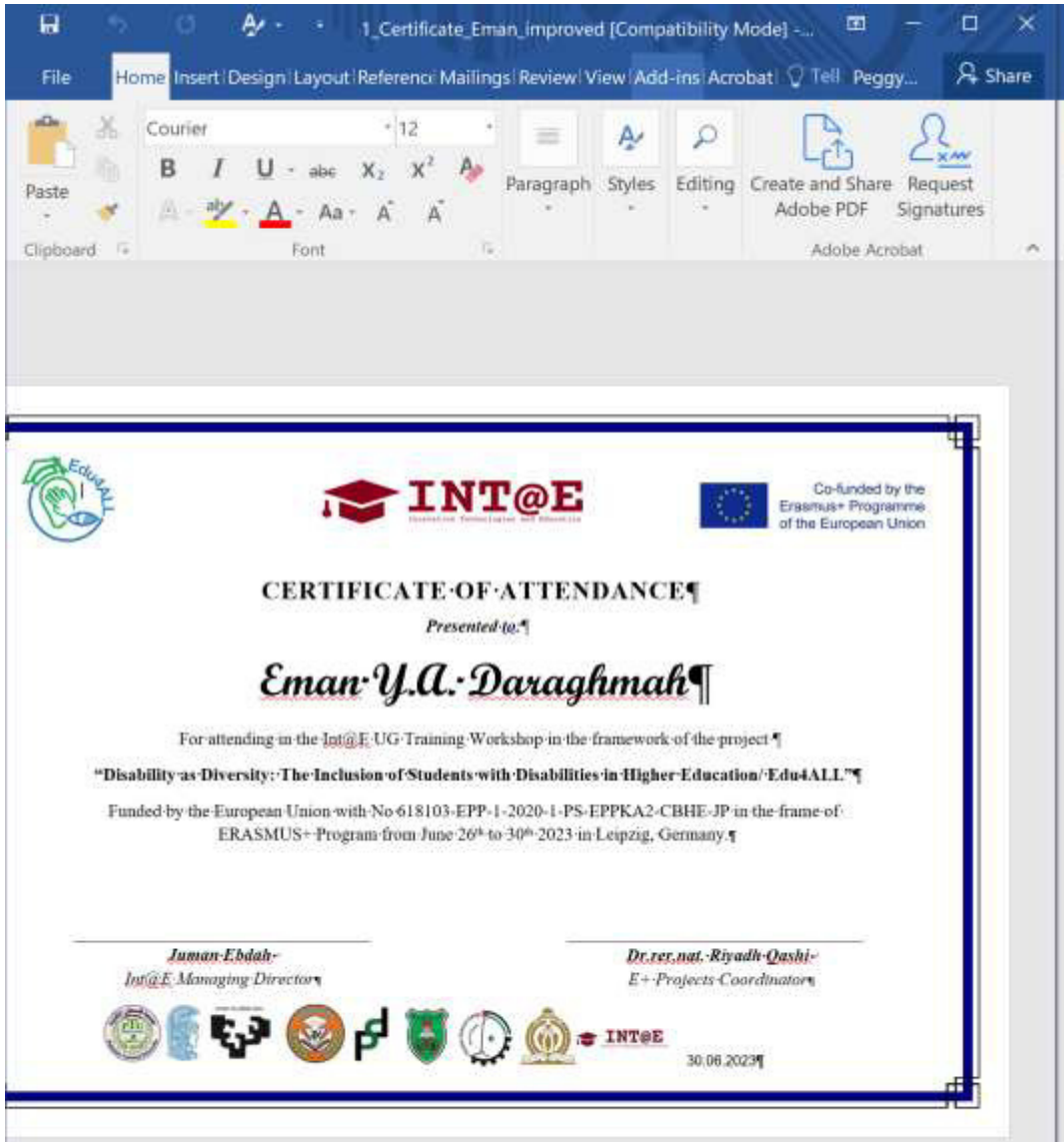


Preparing Accessibility in Word

Footnotes / table of contents

- Set footnotes in Word without fail (via References)
- Generate table of contents with Word (via References)
- User-defined table of contents
  Uncheck and without filler characters





INT@E

Co-funded by the Erasmus+ Programme of the European Union

CERTIFICATE OF ATTENDANCE

Presented to:

Eman Y.A. Daraghmah

For attending in the Int@E UG Training Workshop in the framework of the project

"Disability as Diversity: The Inclusion of Students with Disabilities in Higher Education/ Edu4ALL"

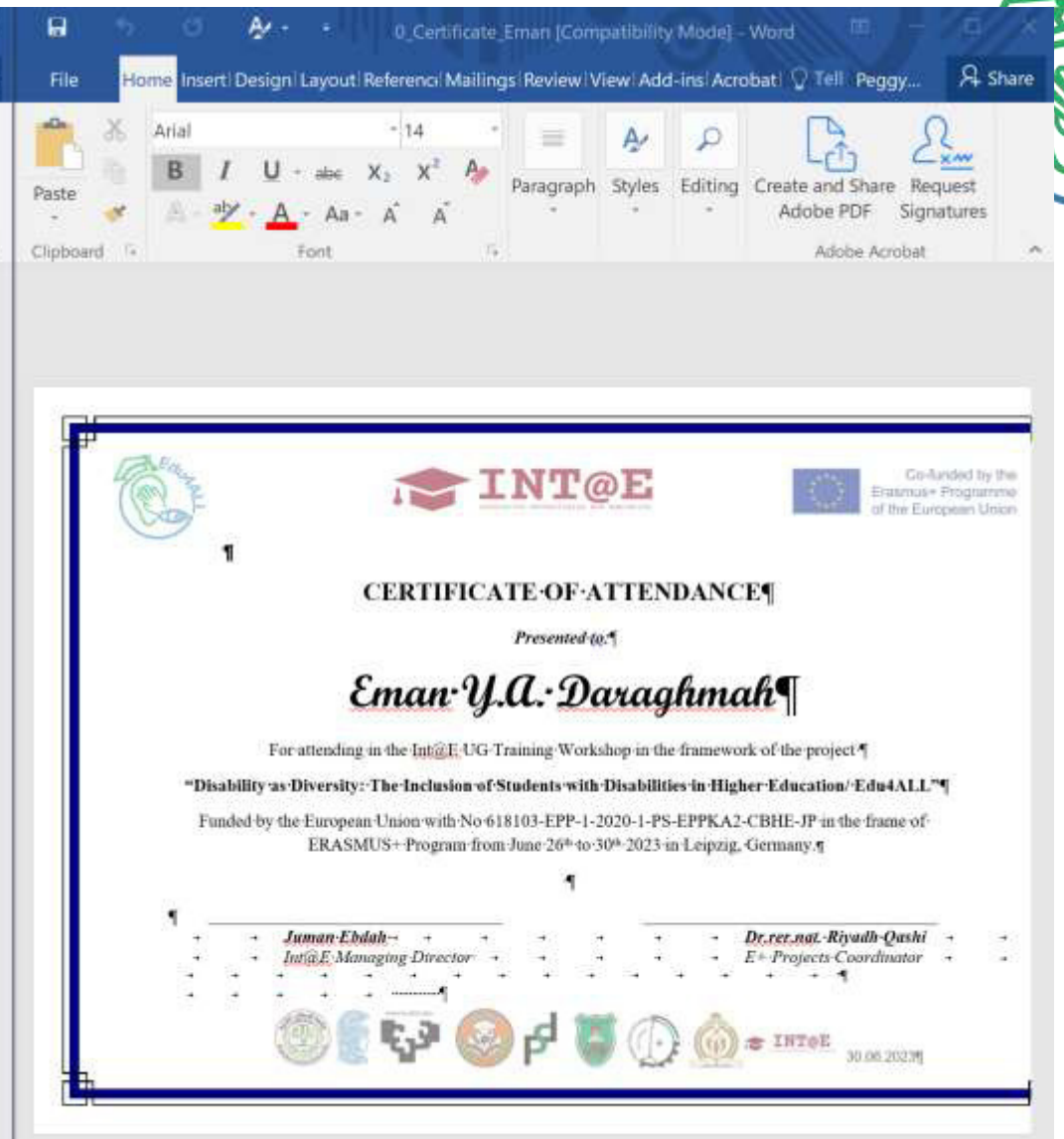
Funded by the European Union with No 618103-EPP-1-2020-1-PS-EPPKA2-CBHE-JP in the frame of ERASMUS+ Program from June 26th to 30th 2023 in Leipzig, Germany.

Juman Ebdah
Int@E Managing Director

Dr.rer.nat. Riyadh Qashi
E+ Projects Coordinator

INT@E

30.06.2023



INT@E

Co-funded by the Erasmus+ Programme of the European Union

CERTIFICATE OF ATTENDANCE

Presented to:

Eman Y.A. Daraghmah

For attending in the Int@E UG Training Workshop in the framework of the project

"Disability as Diversity: The Inclusion of Students with Disabilities in Higher Education/ Edu4ALL"

Funded by the European Union with No 618103-EPP-1-2020-1-PS-EPPKA2-CBHE-JP in the frame of ERASMUS+ Program from June 26th to 30th 2023 in Leipzig, Germany.

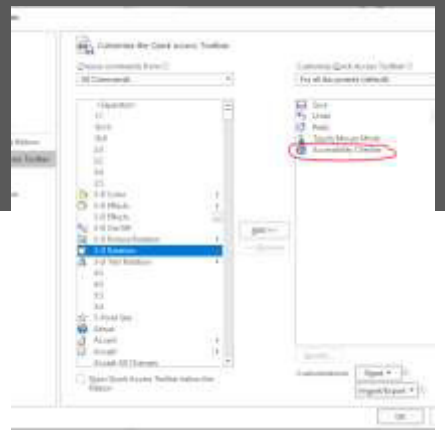
Juman Ebdah
Int@E Managing Director

Dr.rer.nat. Riyadh Qashi
E+ Projects Coordinator

INT@E

30.06.2023

Accessible Excel and Powerpoint presentations



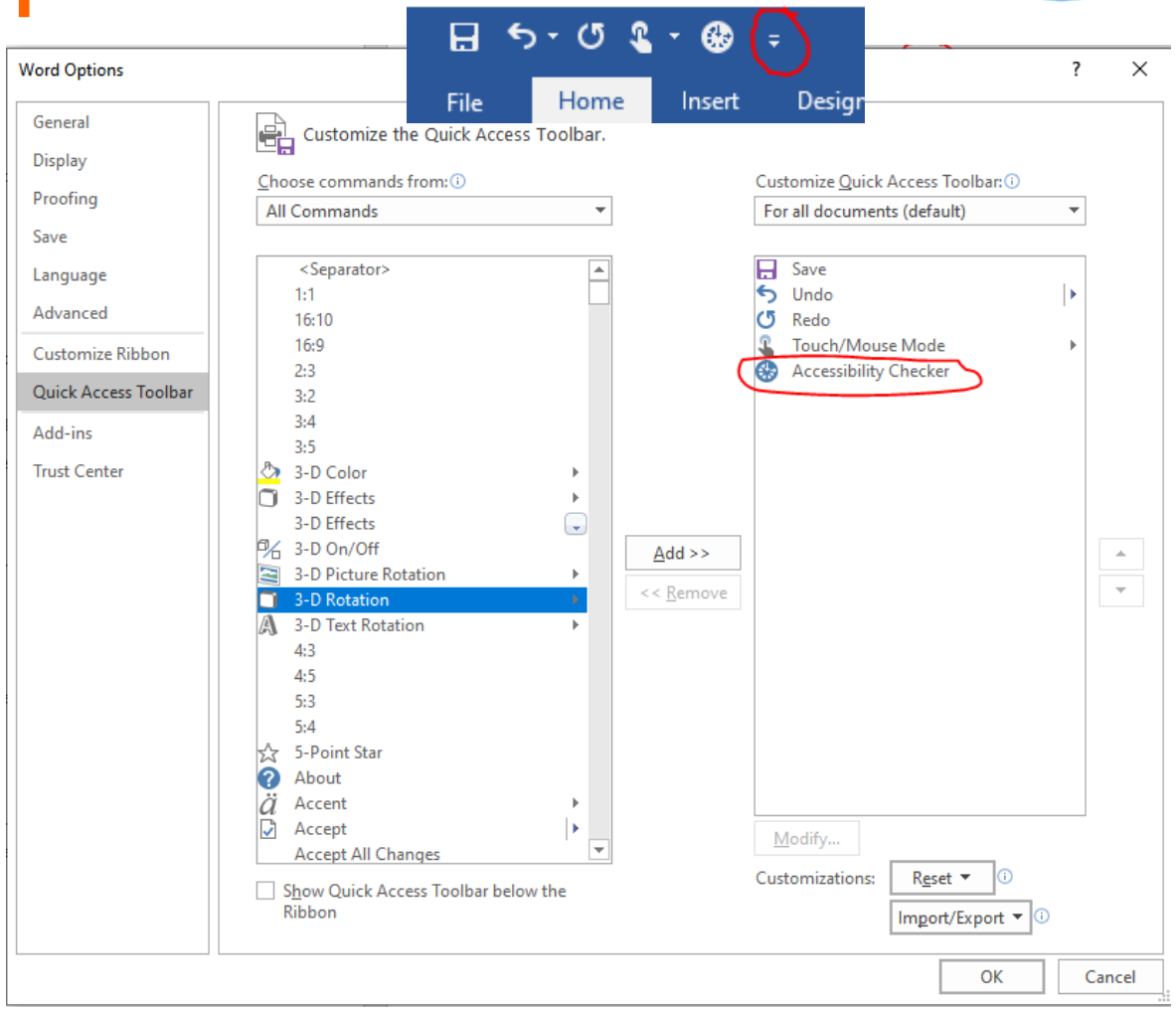
Accessibility in Word, Excel and Powerpoint

For Excel and PowerPoint, exactly the same applies as for Word on the topics:

- Lists
- Language
- Headings
- Alt texts
- TitlesTables

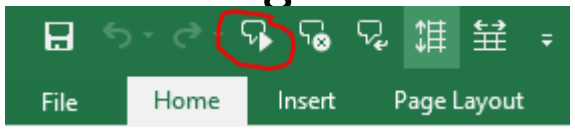
Accessibility Checker depending on version in Excel, Powerpoint and Word.

Unfortunately does not check everything (only alt text and contrast)

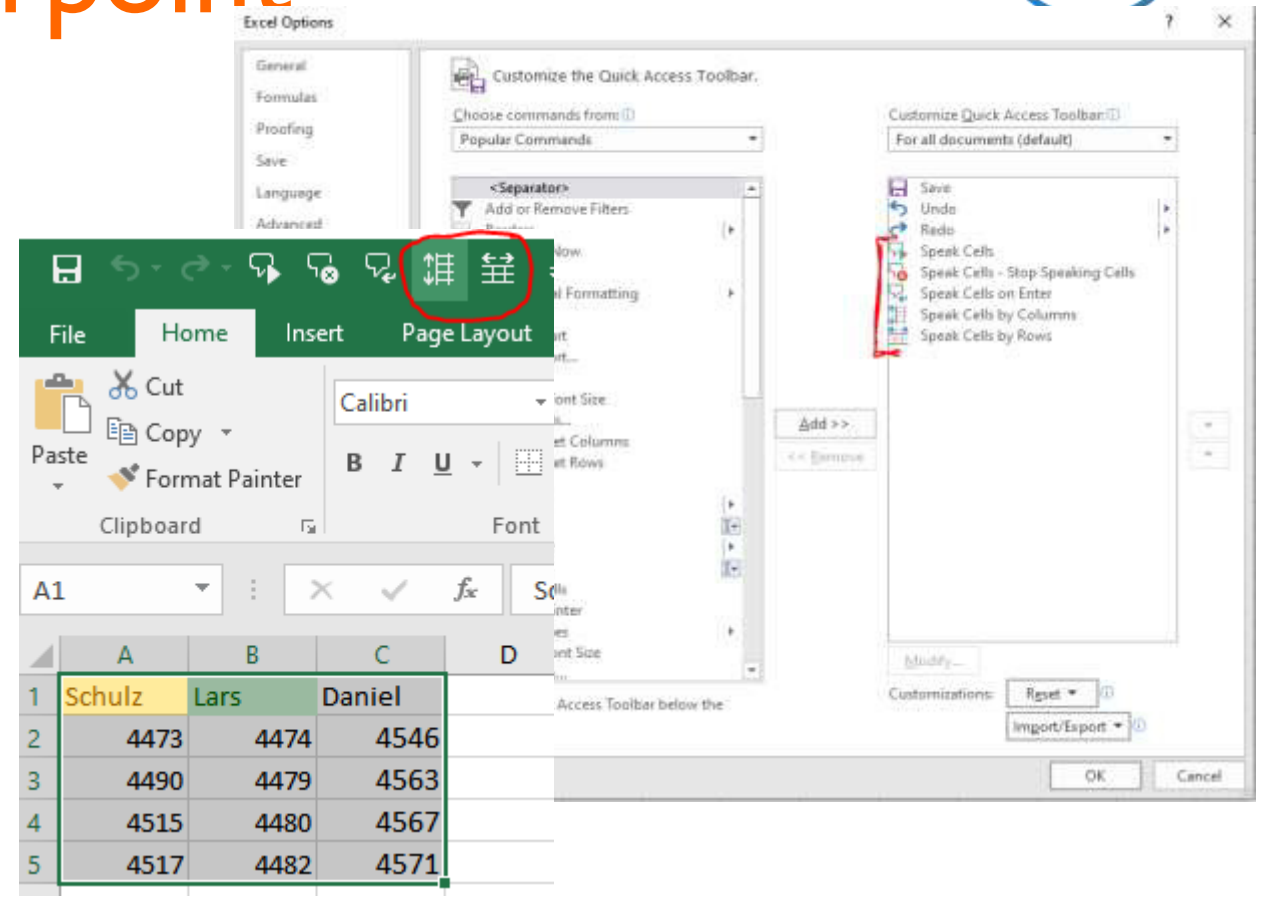


Accessibility in Word, Excel und Powerpoint

- Select cells and set reading direction
- Check with

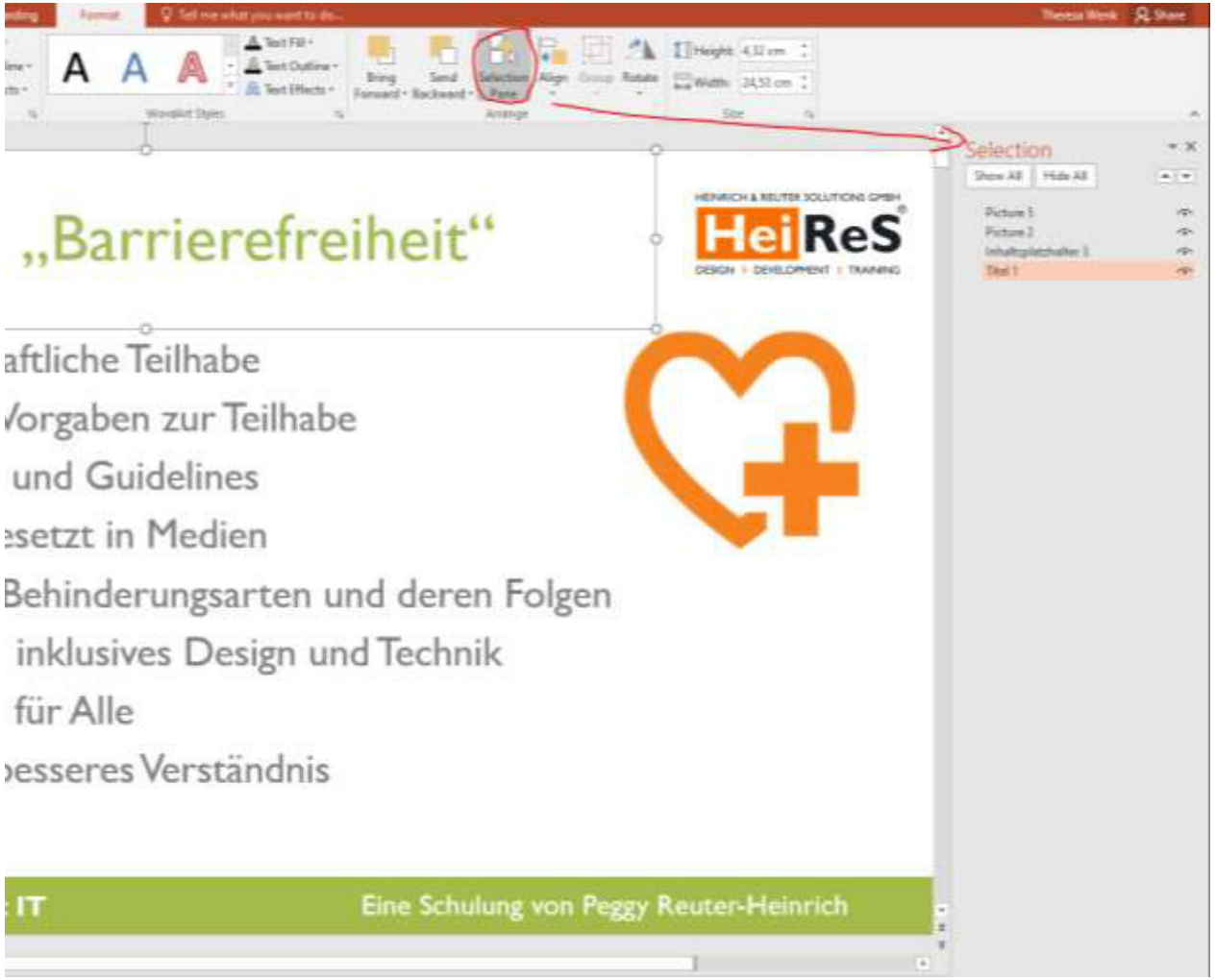


- Select table and format as table
- Select design and confirm
- “My Table has headers” must be selected
- Design tab > Give the table a name



Accessibility in Word, Excel und Powerpoint

- It is best to work with layouts (reading order).
- But also check and adjust if necessary



Making PDFs accessible with Acrobat

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The PDF Accessibility Checker

OneNote as OCR

- recognition in images

PAC 3 programme

- PDF accessibility check
- Super Screenreader Preview
- Recognised toolsGoal is "all green"

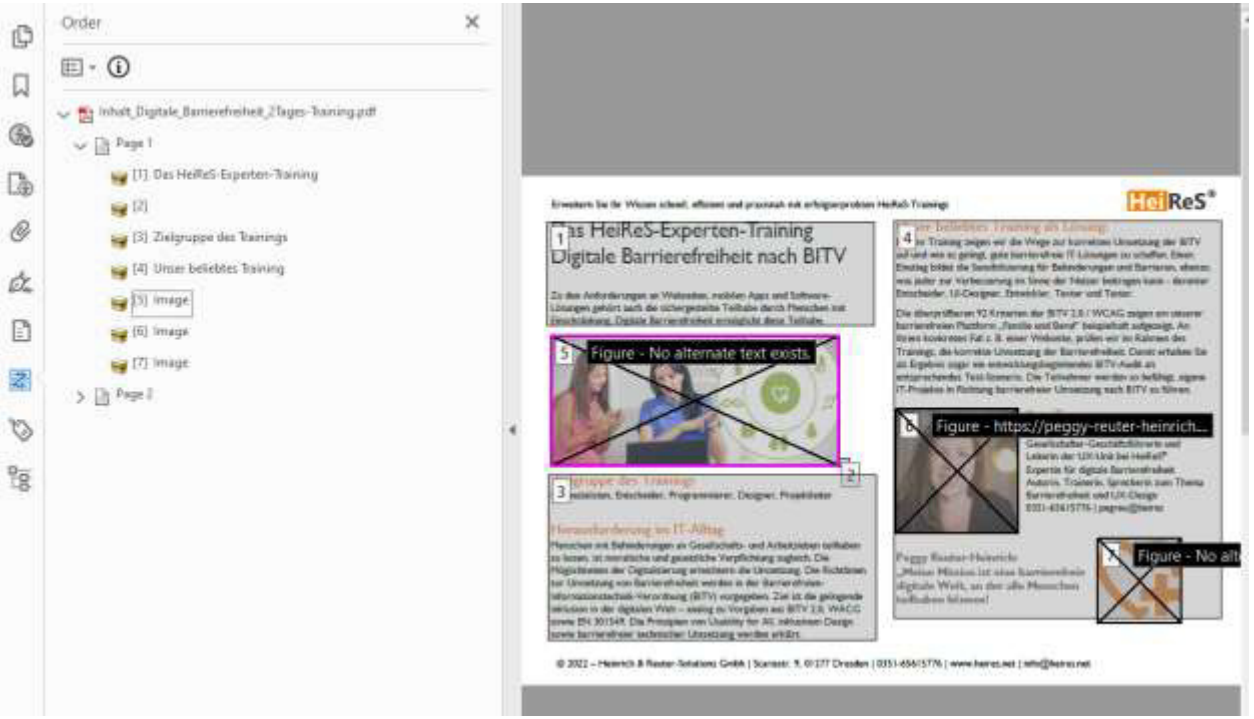
Creating accessible PDF with Acrobat Pro

Check read order

Check order in Order Panel

Change:

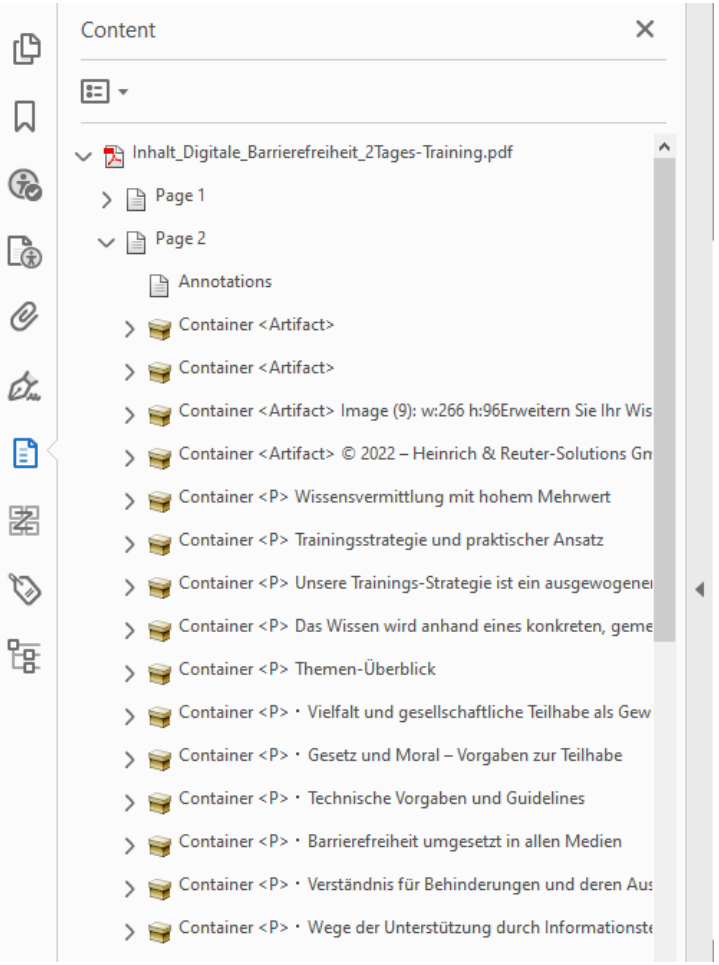
- If autotag does not work Delete Tag
- Structure Select Readingorder tool
- Mark and tag texts
- Check order in OrderPanel



Creating accessible PDF with Acrobat Pro

Artifacts

- Artifacts are not read out by the screen reader
  - pagination
  - Seperators
  - Decorative images/elements
- This can be checked and changed in the Content Panel
- Right-click on the element and select Create Artifact.

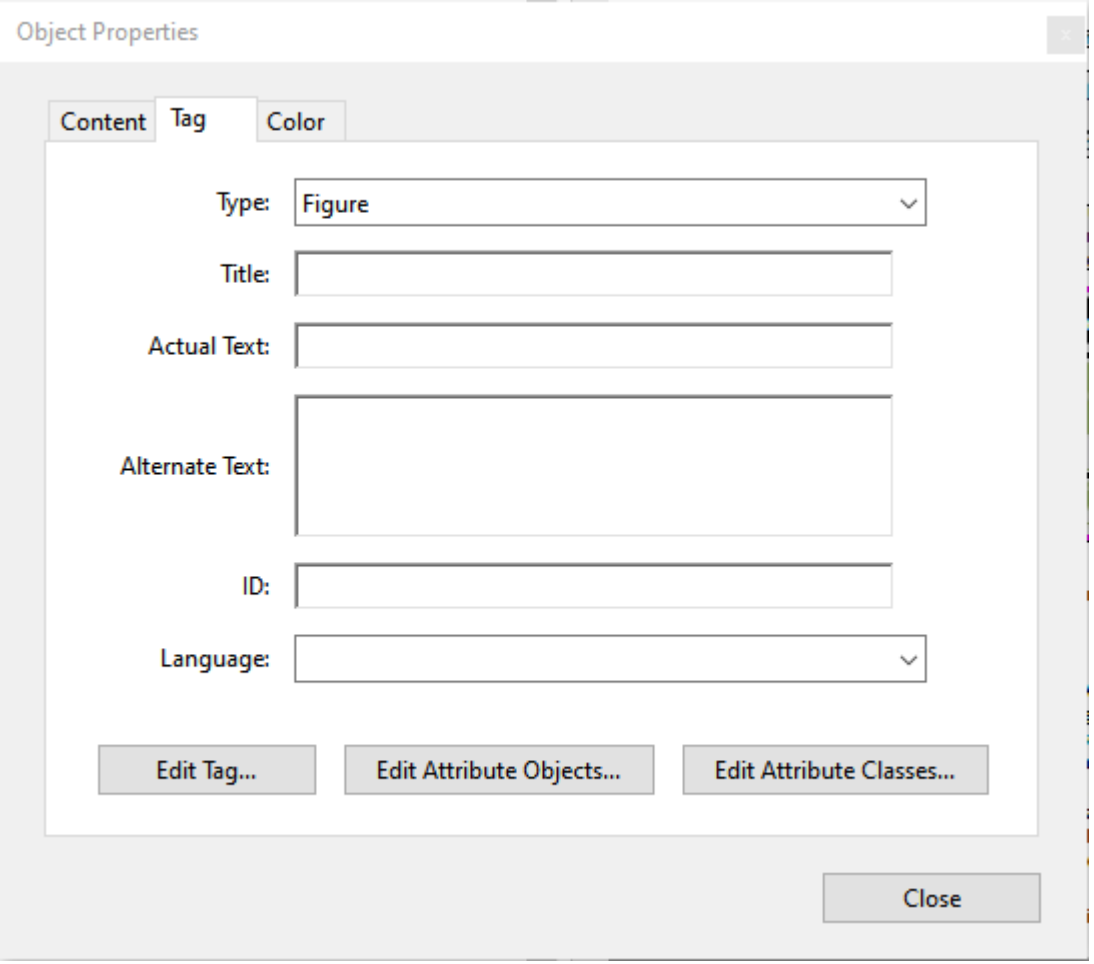


Creating accessible PDF with Acrobat Pro

Editing tables

Accessibility > Readingorder

- Select table and select Table Editor
- Select elements and edit properties via right mouse button
- Add alt text to image
- Right click on Figure in Tag
- Panel > Properties and add alt text



Creating accessible PDF with Acrobat Pro

Fußnoten

- span der Fußnote anzeigt im Dokument finden und in Readingorder in Referenz umwandeln
- Anschließend im TagPanel die dazugehörige Note direkt unter die Referenz schieben

Hyperlinks

- Wenn in Word ordentlich erstellt schon alles super
  sonst Bild auswählen rechte Maustaste > Link erstellen
- Danach im Tag Panel rechte Maustaste auf Tag und find.. dann suchen nach unmarked link
  und einen Link Tag erstellen nun nur noch an die richtige Stelle schieben (direkt in das Figure) und Bild in den Link schieben

Creating accessible PDF with Acrobat Pro

Check in Acrobat DC

Manual check is required for:

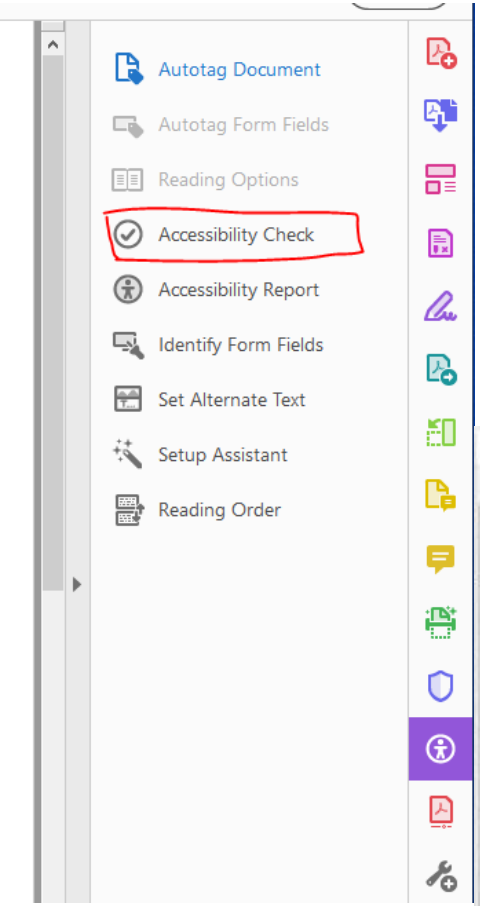
The logical order and Contrast sufficient

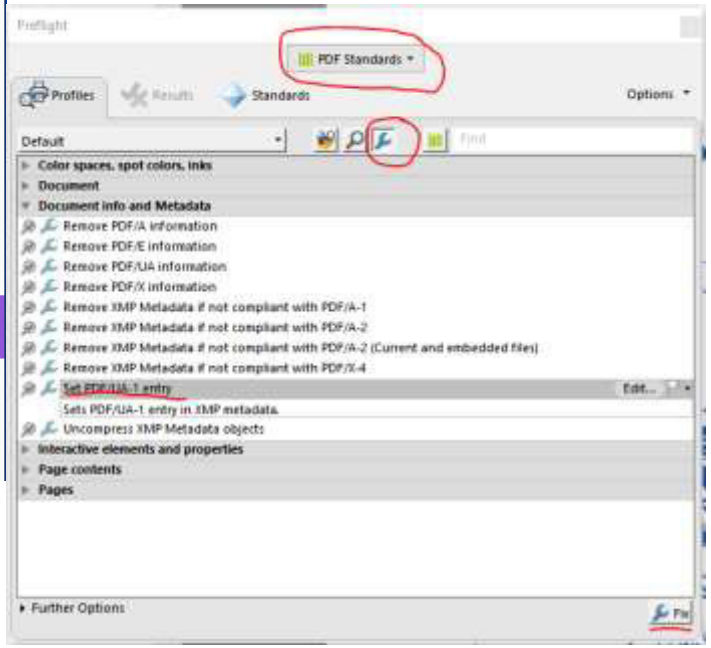
Not checked for:

- Meaningfulness of headings, captions, links
- Simple language or spelling
- Coherence of layout and language

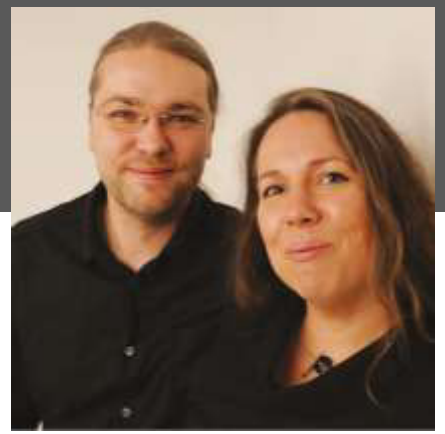
Document properties ctrl + D

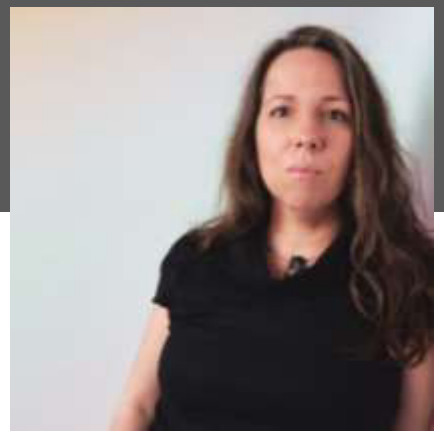
Optimize PDF > Preflight
(only important if checked with PAC 3)





Thanks for your attention
Let us stay in touch





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INT@E
Innovative Technologies and Education

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Int@E Managing Director

Dr.rer.nat. Riyadh Qashi
E+ Projects Coordinator

30.06.2023

PAC-Prüfbericht

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

Prüfung

Datum/Zeit	PAC-Version	Standard
2023-06-23 16:46	3.0.7.0	PDF/UA

PDF-Dokument

Titel
CERTIFICATE OF ATTENDANCE
Dateiname
6_Certificate_Eman_PDFfromImprovedWord.pdf

Sprache	Tags	Seiten	Dateigrösse
en	15	1	512 KB

Ergebnis

Die von PAC geprüften PDF/UA-Anforderungen sind erfüllt.

Prüfpunkt	Erfüllt	Warnung	Nicht erfüllt
Basisanforderungen			
PDF-Syntax	21	0	0
Schriften	26	0	0
Inhalt	1 932	0	0
Eingebettete Dateien	0	0	0
Natürliche Sprache	680	0	0
Logische Struktur			
Strukturelemente	36	0	0
Strukturbaum	30	0	0
Rollenzuordnungen	126	0	0
Alternative Beschreibungen	60	0	0
Metadaten and Einstellungen			
Metadaten	6	0	0
Dokumenteinstellungen	6	0	0

PDF Accessibility Checker (PAC) analysiert die Barrierefreiheit von PDF-Dateien gemäss des ISO-/DIN-Standards 14289-1 (PDF/UA) unter Verwendung des Matterhorn-Protokolls.
Er überprüft 107 automatisch prüfbare Kriterien.

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ERASMUS+ PROGRAMME
Erasmus+ - Key Action 2
Capacity Building in the Field of Higher Education

Training Workshop

Edu4All

Disability as Diversity: The Inclusion of Students with Disabilities in Higher Education

Project No.: 618103-EPP-1-2020-1-PS-EPPKA2-CBHE-JP

Date: 26.06-30.06.2023
Time: 09:00 -16:00
Location: MFZ Leipzig Alter Amtshof 2 – 4,
Training Place Room in Building Zimmerstraße 1, 04109 in Leipzig

Int@E UG, Leipzig, Germany

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Agenda of the training

Speaker: Peggy Reuter-Heinrich

Day 1: June,26, 2023

Topic: Entry, empathy and understanding

Time	Agenda item
09:00–09:20	Registration
09:20-09:30	Welcome Int@E- Dr. Riyadh Qashi Dr. Ahmed Ashour
09:30-10:15	Coordination office for equal opportunities in Saxony universities (Koordinierungsstelle Chancengleichheit Sachsen- KCS) Dr. Stefanie Dreiack , Director of the KCS https://www.kc-sachsen.de/
10:15–11:00	• Diversity and participation
11:00-11:10	**Break**
11:10-12:30	• Legal requirement on accessibility • Accessibility for all digital media
12:30-13:15	**Lunch**
13:15–15:00	• Understanding disabilities through empathy • Removing barriers in Digital Solutions
15:00: 16:00	• Discussion + Feedback

End of the 1st day

Day 2: June,27, 2023

Topic: BITV / WCAG for digital accessibility

Time	Agenda item
09:00–09:30	Registration
09:30–12:30	• The BITV / WCAG as an opportunity for all • Understanding the principles of BITV
12:30-13:15	**Lunch**
13:15–15:00	• Checking your own BITV status quo • Support for testing websites • Implementation of BITV- Test on own project
15:00: 16:00	Discussion + Feedback

End of the 2nd day

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BITV: Barrierefreie Informationstechnik Verordnung = Barrier-free Information Technology Ordinance

Day 3: June,28, 2023

Topic: Implementing digital accessibility

Time	Agenda item
09:00–09:30	Registration
09:30–12:30	• Implementation of digital accessibility • Design for all und Universal Design
12:30-13:15	**Lunch**
13:15–15:00	• Tips for planning, design, content, development, testing • Easy / simple language for better understanding • Multilingual as part of accessibility
15:00: 16:00	• Discussion + Feedback

End of the 3rd day

Day 4: June,29, 2023

Topic: Accessible teaching and learning tools

Time	Agenda item
09:00–09:30	Registration
09:30–11:15	• Work with CMS for websites • Making PDFs accessible with Acrobat Pro
11:15-11:30	**Break**
11:30-12:00	• Creating accessible Word documents
12:00-12:30	**Lunch**
12:30–15:00	• Barrier-free presentations in PowerPoint • Accessible video presentations
15:00: 16:00	Discussion + Feedback

End of the 4th day

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Day 5: July,30, 2023

Conclusion with certificate handover

Time	Agenda item
09:00–09:30	Registration
09:30–10:00	• Barrier-free presentations • Accessible video presentations
10:00-11:00	**Certificates**
11:00-12:00	**Lunch**
12:00-16:00	Visit to • The University of Leipzig

End of the 5th day

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Partners

No.	Partner Name
P1	Palestine Technical University Kadoorie (PTUK)
P2	National and Kapodistrian University of Athens (UoA)
P3	University of the Basque Country (UPV/EHU)
P4	Irbid National University (INU)
P5	The University of Jordan (UJ)
P6	Al-Ummah University College (UUC)
P7	Palestine Technical College - Deir Elbalah (PTC)
P8	Partners for Sustainable Development (PSD)
P9	Int@E UG

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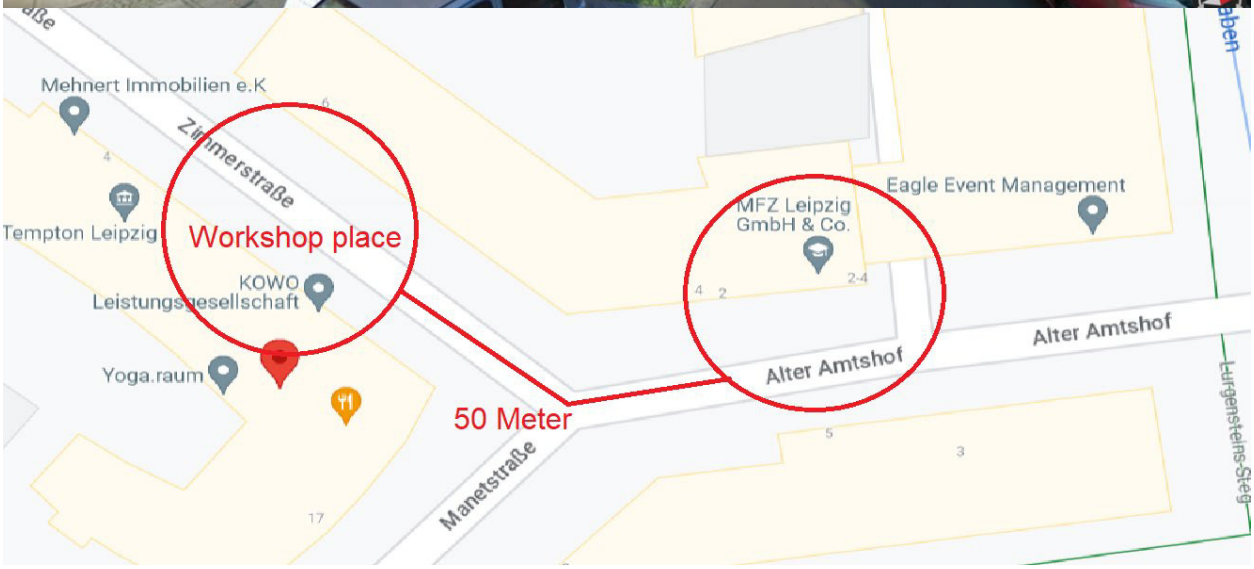
Workshop Place

MFZ Leipzig Alter Amtshof 2 – 4,
Training Place Room in Building Zimmerstraße 1, 04109 in Leipzig



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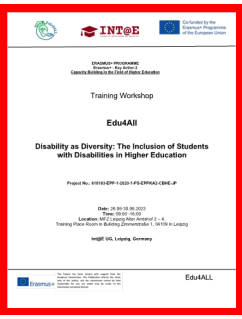
PAC Test Report

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

Check

Date/Time	PAC Version	Standard
2023-06-23 16:36	3.0.7.0	PDF/UA

PDF Document



Title
(no title)
Filename
Agenda_2ndTraining Workshop_Leipzig_26.06-30.06.2023_V0.2 RQ.pdf

Language	Tags	Pages	Size
de-DE	392	6	466 KB

Result

This PDF file is not PDF/UA compliant.

Checkpoint	Passed	Warned	Failed
Basic Requirements			
PDF Syntax	408	0	0
Fonts	10	0	6
Content	14 880	0	0
Embedded Files	0	0	0
Natural Language	6 428	0	0
Logical Structure			
Structure Elements	32	128	176
Structure Tree	778	6	0
Role Mapping	886	0	0
Alternative Descriptions	1 564	0	8
Metadata and Settings			
Metadata	2	0	4
Document settings	10	0	0

PDF Accessibility Checker (PAC) evaluates the accessibility of PDF files according to ISO-/DIN-Standard 14289-1 (PDF/UA) by using the Matterhorn Protocol. It checks 107 criteria that can be checked automatically.

PAC is a free checking tool of the foundation «Access for all»: www.access-for-all.ch

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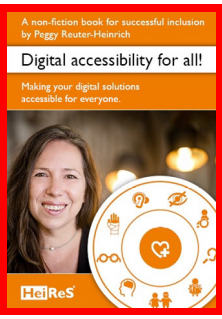
PAC Test Report

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

Check

Date/Time	PAC Version	Standard
2023-06-28 12:57	3.0.7.0	PDF/UA

PDF Document



Title			
Digital accessibility for all!			
Filename			
Digital accessibility for all - Peggy Reuter-Heinrich.pdf			
Language	**Tags**	**Pages**	**Size**
en	1872	196	1 MB

Result

The PDF/UA requirements checked by PAC are fulfilled.

Checkpoint	Passed	Warned	Failed
Basic Requirements			
PDF Syntax	2 666	0	0
Fonts	20	0	0
Content	128 964	0	0
Embedded Files	0	0	0
Natural Language	58 624	0	0
Logical Structure			
Structure Elements	2 240	0	0
Structure Tree	3 114	0	0
Role Mapping	3 798	0	0
Alternative Descriptions	7 488	0	0
Metadata and Settings			
Metadata	6	0	0
Document settings	74	0	0

PDF Accessibility Checker (PAC) evaluates the accessibility of PDF files according to ISO-/DIN-Standard 14289-1 (PDF/UA) by using the Matterhorn Protocol. It checks 107 criteria that can be checked automatically.

PAC is a free checking tool of the foundation «Access for all»: www.access-for-all.ch

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A non-fiction book for successful inclusion
by Peggy Reuter-Heinrich

Digital accessibility for all!

Making your digital solutions accessible for everyone.

HeiReS

Dresden, June 2023

This book is available in bookstores under:
ISBN 978-3-00-069926-9

Edition history
Edition 1 of 75 copies in June 2023, 196 pages

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Printing: Flyeralarm GmbH

More information about this book on the Internet:
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https://www.peggy-reuter-heinrich.net/buch

Please direct comments and inquiries to buch@heires.net

Digital accessibility for all!
A non-fiction book for successful inclusion
by Peggy Reuter-Heinrich

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profession. That's my biggest fear. Do you also know the feeling of fear? Fear due to lack of orientation, lack of help or inability to work?

Strongly motivated by this feeling, I started to research. How would it feel to experience all this on the computer? Would everything there be black and nothing more? Everything that you use in digital life only becomes visible on monitors. The thought continued to accompany me and I continued to test. I tried to use all kinds of digital things with a blindfold. Technically, as an IT specialist, this is quite possible for me: I can simply use the keyboard to move through digital solutions and websites. I had to listen to what the computer voice was telling me. Except for the operating system, however, hardly anything worked. Food delivery, cosmetics, shopping, buying a train ticket, filling out an official application form, using social media, reading specialist information, watching movies. Nada, niente, nothing. "The digital reality is really bad for users. IT thus really creates exclusion," I thought. This is a violation of human rights of disabled people. According to UN disability law, people with disabilities have had the right to participate since 1947.

In 2019, I experienced the key to the solution. It happened at a Microsoft conference in Redmond, USA. I observed how an apparently blind developer controlled his computer very well. He worked highly professionally with it in the usual programmer software. He told me that he is blind AND a senior software developer at Microsoft. In detail he showed me how he works with computer and software. He used only the keyboard - that is, through his sense of touch. The information stored in the software about all visible content was read aloud. Basically, it seemed quite simple. IT bridged the missing sense of sight to the auditory channel. It also explained to me what the key is - namely digital accessibility.

I realized that this is indeed a challenge. Three important things play together as a prerequisite: The decision at the corporate level for fair participation by all people. The provision of a barrier-free framework in IT hardware and especially in digital solutions. Bringing in the people with their will, and their abilities - despite limitations.

It also became clear to me that IT can be a barrier at worst and build bridges at best. IT is then the key to enabling people to participate, join in and work. This realization has changed me as a UX designer, IT professional and entrepreneur. Now I have dedicated myself and holistically to the topic of "digital accessibility". I wish you much joy and insight, but especially inspiration for action. Only together can we change the IT world for the better.

An introduction and the meaning of this book and accessibility

Congratulations on choosing this book and on "Digital Accessibility for All". This gives you a head start in knowledge on a topic that is important for everyone. You also show responsibility for participation in the digital lives of disadvantaged people.

My name is Peggy Reuter-Heinrich. I am the author and a UX designer by profession. In my professional life, I design various digital solutions. This gives me a special view on the users of digital solutions. I also teach on topics related to design and IT. Digital accessibility or a barrier-free digital world are part of this in terms of content.
As an entrepreneur, I run the Dresden IT company HeiReS® ,

At the end, you will receive a lot of direct contact data for associations and people who are committed to inclusion. Let us make the digital world friendlier for ALL people together.

owe it in essence to my beloved husband Lars. He has supported me in all my crazy ideas for many years. It is only because of him, my family and my team that I am able to hold my book in my hands. So are you now! We hope it inspires you to make the IT world more people-friendly.
More accessibility in the digital world is a matter close to my heart. Through an accessible IT world, the human right to participation of disadvantaged people is realized. My goal with this book is to bring this serious topic closer to everyone.

A printed book is new territory for me as an author and for HeiReS as a publisher. This book is a bold first step towards something much bigger. I want to bring inclusion and IT across with ease and inspire action. As a light paperback, the book can be your companion in everyday life.

My writing style in easy language helps to understand the topic. This style may be a bit surprising for you while reading. Easy language was actually created for people with learning difficulties. Easy language follows clear rules, which I have tried to apply. Some parts of the book are rather simple language. This book should be pleasant and easy to read for all people. This way, it will produce the effect I hope for. As many readers as possible should become active co-creators of successful inclusion.

This book deals with a current topic. Many things are changing. In order to constantly improve it, we only produce it in small editions. You are welcome to send me your opinion and suggestions regarding the content. To do so, please write to the e-mail address buch@heires.net.

The current book "Digital Accessibility for All" is available in different formats. So everyone can use it according to their own needs. We have made the book available to you in four versions.

- A printed paperback in pleasantly legible type and good design. Thus, it is a practical companion for your everyday life.
- The barrier-free edited PDF can be operated barrier-free. You can also have it read aloud from your computer or cell phone.
- As an "audio book", recorded by myself. You can listen to the content wherever you are.
- As a so-called e-book for corresponding devices for digital reading of books.

For later editions of this book, I am planning more beautiful things. The next larger edition will be printed on eco-paper. This is much better for the environment. I would also like to see some nice pictures and graphics in the book. Supplementary printed Braille would be especially great, but that is difficult. In terms of content, I am sure something exciting will be added. In addition, I would like to have more forewords on the subject of accessibility. I presented the German edition at the famous book fair in Frankfurt in 2022.

These special things for an accessible book will cost a lot of money. You, as the buyer of this book, are therefore making an important contribution to the future. Personally, however, neither the publisher nor the author want to make a profit on the book. Parts of the book proceeds will be used for charitable purposes, for example research on accessibility. We thank you from the bottom of our hearts for your purchase and support.

Invitation to reflect and implement

What is your connection to the topic of accessibility and the digital world? Do you have specific challenges you need help with? Think about your perspective. I am really interested in what you do and what makes you tick. Check it out at www.peggy-reuter-heinrich.net.
Or write to buch@heires.net.

Space for your notes

Understanding accessibility

The top misconceptions about accessibility

Misconception 1: Does not concern me

Difficulties in the use of IT solutions start on a small scale. Unfortunately, IT creators often forget or ignore this sad fact. Therefore, you will now receive some information on how this looks like in Germany:

- 35 percent of Germans need glasses to read on their cell phones or computers.
- 10 percent of all men suffer from color vision deficiencies. They also see the IT world gray in gray.
- 25 percent of people living in Germany have language barriers. They poorly understand German.
- 14 percent of all adults are so-called functional illiterates. They can only read and write poorly.
- 20 percent of senior citizens are overwhelmed by new technologies. Many things are too difficult to use or too small to operate with.
- 10 percent of those in need lack support in the form of money or other assistance. Applications can be overwhelming because they are too complicated.
- 30 percent of all Internet sites are barely usable on mobile phones. More than 50 percent of Internet sites are used via cell phones.

These figures are only approximate percentages. They refer to the population of Germany in 2021. The sources are statista.com, wikipedia.org, bpd.de and google.com.

These examples are only a selection of many supposedly small problems. But it is precisely these that make the barrier-free use of digital solutions more difficult. Basically, almost everyone is somehow affected by a lack of accessibility. Yes, IT solutions partially hinder every person somehow. This also affects you in some way, if you think about it.

And now imagine that you have a real disability. If this is difficult, think about which person in your environment is affected. Everyone knows at least one person with a recognized disability.

Barriers in the digital world affect people with disabilities very hard. Indeed, barriers deny these people to fully participation in digital life. The lack of accessibility prevents people from the right to participate. Basically, this is a violation of the global human right to participation. It is a discrimination against people with disabilities and limitations. It even violates their human dignity, which they are entitled to under the German Basic Law.

Misconception 2: I do not need

With commercial digital solutions and products, it is mostly a matter of reach. Companies always want to have as many potential users and customers as possible. The logical conclusion is therefore to include all conceivable target groups. It therefore makes sense to include people with limitations as well. Otherwise, they might switch to a competitor.

The chance of more money is usually enough incentive for a rethink. Besides the economic aspects, accessibility is also a moral

Invitation to reflect and implement
Have you perhaps had some of these 5 misconceptions as well?
How do you now think about accessibility in general?

Space for your notes:

Participation, diversity and accessibility

Openness and awareness are important in dealing with digital accessibility. It is about empathy and getting involved with restrictions, barriers and disabilities. The goals are diversity, the joint removal of barriers, and implementation according to rules. The way to get there is the logic chain of successful inclusion. This chain is diversity, participation, accessibility and barrier-free. There is logical linkage and mutual condition between all elements. Diversity in our lives and successful inclusion is the deep "why" behind everything. Accessibility makes participation and inclusion possible.

With the inclusion of all people, we gain diversity in all areas of life. This way, we create a good life together in a diverse coexistence. We achieve diversity by respecting all people. Everyone has the right to participate in all areas of life. There is a worldwide human right to this.

Accessibility in the digital world is achieved by applying these BITV rules. BITV is the official abbreviation for Barrier-Free Information Technology Ordinance. When I talk about BITV in IT jargon, I can hardly convince you. Most people know little about such regulations and laws. That is why I address you primarily with the importance of diversity. Of course, this also applies in digital life.

It is bout diversity of all people in everyday life, work, education, politics, and society. Of course, this also applies to the digital world. This is how we create the kind of life together that we want. We can only live well in a society in which everyone can participate. This creates a society that includes everyone. A society that is good for everyone. Inclusion is the idea of true togetherness and equal participation of all people.

damage, for example, from listening to music at high volume. Explosions or an accident can cause major hearing damage. Of course, the hearing ability decreases with age.
The consequences of not hearing are a major limitation. Audible speech, environmental sounds and the enjoyment of music are eliminated. Film or television sound is also only possible to a limited extent. This is due to the mix of visual and auditory. Conversations and sounds fall away. Just turn off the sound. Then you can understand this disability. Communication with other people is more difficult.

Many hearing-impaired people can supplement what is missing with lip-reading. In large group conversations, however, this possibility is not available. Lip reading is then very limited. This is a challenge for the hearing impaired. Environmental sounds are hardly perceptible for the hearing impaired. Quiet electric cars in traffic are therefore dangerous for the hearing impaired. That is why these cars have a sound.

Hearing impaired people can hardly follow events, presentations and lectures. At conferences, there are rarely offerings for the hearing-impaired. For these people, however, technology offers some support. Again, it is about bridging the gap to other senses. Here, instead of hearing, the user is offered the possibility of seeing. A visible text for video and audio presentations is a support. One builds either readable additional text or subtitles into the video.

Sign language can of course also be a possibility. Then you see a complementary speaker with hands and facial expressions. One can also offer other alternatives to video such as text. The modern technology of virtual reality glasses can also help. What is heard is presented through these glasses as a sign language avatar or text.

Manual disabilities

Then there are the manual restrictions. Here it is mostly about the hands. With this disability, there are different causes. These include long-term damage caused by computer use. These are caused, for example, by using the mouse and sitting incorrectly. Other causes are diseases like rheumatism, gout, tremor, Parkinson. The operation of mouse, keyboard and pen is thus limited. Adhesions of the hands exist from birth, sometimes as a result of diseases. All this means a more difficult computer operation. For example, these people can only operate the mouse more slowly. They can use a pen only with difficulty.

The design with a handy design can therefore provide a good basis. A non-slip design of the product also supports touch operation. This means giving commands to the computer by touching the screen. A simple keyboard control for operation is also helpful and important. Much better is the so-called gesture control. This means, using gestures with the hands. The computer camera interprets the gestures and the program reacts to them. Controlling software by voice is an exciting option.

If the hands for operation are completely missing, it becomes even more difficult. This can happen to anyone. For example, with a plaster arm as a result of an accident. Even in the car, or having a child in your arms, means a limitation. There are also strokes of fate such as accidents, amputations and the consequences of war.

One problem many years ago was the drug thalidomide during pregnancy. Due to a side effect, many babies were born with adhesions. Often the hands had grown directly on the shoulders - without arms in between. Due to the lack of arms, mouse operation on the computer is not an option. Keyboard operation and pen operation do not work. Manual limitation can affect everyone in some way.

Responsibility for accessibility

Things go better with each other

It is important to stand up for people with disabilities. People with disabilities should be able to use digital solutions. Inclusion only succeeds when all those responsible in the process work well together. I will show you how different stakeholders act together effectively. However, it takes more than just reading and talking about it. We need to act - together hand in hand. The ultimate goal for all of us must be successful inclusion.

We as a society need to include people with disabilities in digital solutions. All those involved in the inclusion process should therefore exchange ideas and work together. One possible help is a wider range of free, accessible digital solutions. This will help those affected, their families and other supporters. To do the right thing, we need to talk to people with disabilities. We need to understand needs, approach and problems from these people. It would be good to let people with disabilities test IT solutions. We can only create good digital solutions with a positive feedback. Anyone offering IT solutions can have them tested for accessibility. There are experts for testing accessibility according to BITV. However, the service costs a lot of money. The operator can receive a certificate for a barrier-free digital solution, according to BITV. A certificate is like a stamp that shows that an IT project is barrier-free. The BITV certificate states that the IT solution meets the BITV criteria. It is free of a statement whether it is useful for people with disabilities. The certificate is therefore only a statement about the technical usability.

IT creators should also learn what works well. It is important to ask people with disabilities what they need. The helpers and

relatives can also give input. They know about the everyday life and problems of people with disabilities. They can give providers honest information for good digital solutions. Helpers or caregivers can recommend good digital solutions to those affected. With posters, Internet pages, e-mails or conversations, affected people can get information. Many affected people should hear about good solutions.

Only together can we make the digital world better through accessibility. It is important to address people from non-profit organizations and associations. This could be, for example, Lebenshilfe, Aktion Mensch or the Association for the Blind. Ideas for new digital solutions can emerge from joint discussions. There is the possibility of financial support from the state for such projects.

Successful inclusion is also a task for the federal government, the states and the cities. Every large city has an official person who is responsible for inclusion. It is important to have a conversation with them.

Inclusion officers know the benefits of accessible digital solutions. If these solutions are good and even free of charge, more people benefit from them. This also helps the cities, districts, federal states and Germany. In this way, these regions show that they are helping people with disabilities. They also show that they are modern and innovative. It is mandatory by law for public authorities, to make their own Internet sites barrier-free.

Many companies will have to implement their digital solutions barrier-free from 2025. The European Accessibility Act and the Barrier-Free Strengthening Act oblige them to do so. Digital accessibility makes business sense in addition to the legal obligation. There is a special platform. The name is "Unter-

nehmens-Wert Mensch." The Federal Ministry of Labor and Social Affairs offer this website. There are 4 important groups on this website, which offer companies a special added value. Many enterprises have trouble in finding new coworkers. The solution to this so-called shortage of skilled workers could be to hire diverse employees.

On the other hand, disadvantaged people often have great difficulty finding work. Both of these things will only change if companies and those affected work together better. The disadvantaged include people with disabilities and older people. They also include women with family responsibilities and foreign citizens. Many people with disabilities have a good education. They can often achieve a lot and are looking for a job. People in wheelchairs, for example, can work on computers or telephones without any problems. Companies should make more use of this opportunity to attract new employees.

Very large companies in particular must assume more Social Responsibility. Those who hire people with disabilities even win twice as a company. In this way, companies also collect points in the so-called "Social Responsibility Report". This is the report on how much social responsibility a large company assumes. Large companies have to publish a report on what they do for society. There are even points for this. These are annual reports. Large companies with only few points have to pay penalties. However, this only applies to very large companies.

For IT companies, digital accessibility is also an interesting business field. They could offer the development of accessible websites, software or mobile apps. Design companies could conceive and design accessible digital solutions. With such services, they can address new target groups and customers.

Invitation to reflect and implement
Are you affected by a disability in any way?
In which of the mentioned responsibilities do you see yourself?

Space for your notes:

Actively create accessibility

Surely you have asked yourself who should implement accessibility according to BITV and how. BITV stands for Barrier-free Information Technology Ordinance. The abbreviation BITV already indicates it - the IT industry. The information technology is the key industry for the implementation of the human right to participation. There are 6 professional groups that are responsible for the implementation of accessibility.

Implementation is as a clear process with shared responsibilities. Decision-makers initiate accessibility. Usability experts write holistic concepts. Copywriters create appropriate content. Designers create the inclusive design. Developers do the programming for accessibility and testers check the quality. Accessibility, as a good UX for all, is a hand-in-hand process. UX stands for user experience. A good user experience for all people must be the main goal.

Let us look at how to deal with barrier removal in digital solutions. Technology has many different ways to break down barriers. This is, for example, the use of assistive technologies or design solutions. "Smart home" solutions assist people in their own homes. They are like remote control for the entire home. "Augmented reality" or "VR" glasses also help. These innovative glasses add more information to normal reality. IT solutions with image recognition or artificial intelligence are very modern.

The so-called gesture control is helpful - as an alternative to the mouse. You are probably familiar with this on your smart-phone or your PC. It is very helpful for deaf people and foreign language learners if videos have subtitles. The compliance with programming standards is important for the correct implementation of accessibility. A free choice of operation of

the IT solution also helps a lot. Then the user is free to decide for himself. The user can choose between keyboard, pen, mouse, finger and gestures. Speech output and speech input are particularly helpful to users.

A digital solution can also have an alternative user interface. It is better to create an inclusive design right away. Inclusive design means that it is also for people with disabilities. The use of picture language is a helpful design tool for designers. Explanation videos with images are especially helpful because movies are more appealing. Developers can do a lot via programming and IT technology. Describing images in sound is important for blind people.

Invitation to reflect and implement
Are you an enabler and implementer of accessibility? Which specific role do you have? Have you realized how many possibilities there are to help with IT?

Space for your notes:

Invitation to reflect and implement
Is one of your tasks the conception of digital solutions? How should you expand your user groups and target groups? What about incorporating dialog principles?

Space for your notes

You must always see the context in the IT solution before you write anything. Ideally, you prepare it in your word processing program. In Word, for example, you can insert prepared texts into a document. The document structure corresponds to the future web page. This way you can also see immediately which text lengths are appropriate. You can also see where you should use short words. Navigation or description texts you have to text differently. Some kind of basic structure helps you a lot to act media-ready.

Invitation to reflect and implement

Are you aware of your high responsibility when writing? What should you consider when writing anything in the future? Why is simple language so important for texts in accessible platforms?

Space for your notes

Invitation to reflect and implement
What does inclusive design mean as a requirement for you as a designer? Why does a design have to be inclusive first and exclusive second? What specifically makes a good accessible design across platforms?

Space for your notes

Invitation to reflect and implement

What does accessible development mean for you? On which platforms are you challenged with accessible development? To what extent are the BITV requirements important and applicable for you as a developer?

Space for your notes

Invitation to reflect and implement
What are the advantages of Easy Language for you and your readers? Are there people in your environment for whom this would be helpful? Do you now want to learn and use Simple Language yourself?

Space for your notes:

Learning Easy Language

You have learned why Easy Language is important and helpful. It is quite easy to learn. It follows rules like any other language. It is easier to learn than a foreign language. You can learn it more easily than English, for example. After all, you already know complex German very well. All you have to do is to simplify it.

We will discuss 3 main areas for learning Easy Language First, you will learn the basics of word choice and phrasing. Then we look at sentence structure and the ordering of long texts. After that, we take a look at design and presentation as a whole.

Rules on choice of words and phrasing

Long words and word combinations are difficult to read and understand. Therefore, separate long words with more than 13 letters into units with hyphens. In doing so, word groups should remain logical and the language should be preserved. Wrong is: "unemployment benefit form". Correct would be: "Unemployment benefit form". Tied into a sentence, this would be: "Print the Unemployment Money Form."

That might look a bit strange at first. But you get used to it. Better than these separations is the formulation in single words. Basically, you should prefer the shortest possible words instead of grouping words. For example, "Print out the form for the money for the unemployed."
Ideally, use commonly known words. Avoid technical terms. Use simple words when possible. So it is best to use words that everyone can understand well.

For example, a word like "formatting" is rather difficult. Avoid these or other difficult words if you can. If a simple alternative

to it is missing, explain the word. You can do this with a post-sentence. The same goes for technical terms. You sometimes have to use these to make the text correct. In the technical context, name the technical word first. Then explain the technical term in a sentence.

Imagine explaining the complex interrelationships to a 10-year-old child. Then you would also avoid difficult words and speak in clear language. Regarding the term "company-internal vacation time regulation table", you would perhaps say: "All colleagues in our company want to go on vacation. To avoid time problems, we have to plan the times for this together. There is a table for that." This is longer, but easier, more understandable and more memorable.

This way, you also make glossary superfluous. A glossary is an explanation for technical terms at the end of texts. It makes much more sense if you explain all technical terms within the text.

Ideally, you use active verbs. This also makes it an activating language. Avoid turning verbs or activity words into nouns. Especially in German, many words end with "-ung" and "-keit". Avoid "Ge-Ung-e" be. It may sound better overall, but it is harder to understand.

When you name numbers, use the actual digits instead of words. The Duden says that you write the digits from 1 - 12 as words. With Easy Language, it is different. For dates and times, it is good to keep a general standard. For an expression form, keep it throughout the text. In IT, the best standard is the one you use in your own country. For example, in Germany we write 16:00 Uhr. In America this means 4:00 pm. This standard is easier to translate. This generally works better with Easy Language than with normal language.

Invitation to reflect and implement

I hope you have understood the basic rules of Easy Language. Try to write an instruction on how to make coffee for a residential home. Rewrite a complicated text in Easy Language. There are plenty of tasks. Unfortunately, there are far too many difficult texts. Just go for it.

Space for your notes

Understanding the 98 BITV criteria

Accessible Information Technology Ordinance

Now comes a rather thick chunk, namely the almost 100 rules from the BITV 2.0. BITV is the abbreviation for "Barrierefreie Informations-Technik-Verordnung". It is the formal and technical basis of digital accessibility. All detailed rules are part of this regulation. The BITV is a legally binding requirement and applies just like a law. It describes exactly how digital solutions must be in order to be barrier-free. Four major principles and international innovations apply. These principles connect to different detailed rules.

I will go through each rule of BITV with you individually later. This is the essential knowledge and theory. However, the practical implementation of this knowledge is the most important thing. As you know, BITV stands for the "Barrier-free Information Technology Ordinance". It is our law for digital solutions. As IT creators, we have to comply with it.

The 4 big BITV principles are actually principles for good software solutions. These also include design, software ergonomics and usability. They are the essential principles of a digital product.

You can understand it through the detailed rules of the BITV. Then you can say, "Aha, so that is it. That's how the principle is implemented." To provide an accessible product, follow these rules. Every single rule is important. You have to meet all 98 rules 100 percent. Until 2020, there were softer rules. From 90 percent, a website was accessible. That has changed today. With the 100 percent rule, it becomes more difficult.

The legislator has tightened that up again. Now you have to comply 100 percent. Everything in the entire IT solution needs to be barrier-free in accordance with the rules. Regardless of whether it is a website, software or app - 100 percent is a requirement everywhere. Only then, a website gets a certification for being barrier-free in the sense of the BITV. Otherwise, it is only barrier-free or barrier-free without a certificate.

That is certainly good and often sufficient. You have to know the difference. It is difficult to comply with the BITV rules. Sometimes you reach your limit. This 100 percent rule is therefore very hard, perhaps also unrealistic. Nevertheless, they are rules that everyone must follow.

From a moral and motivational point of view, compliance with BITV is important to me. To provide high usability for all people is my overriding goal. Since I am a usability engineer myself, I call it: "Usability for all." I pursue this goal and recommend it as a desirable outcome. First, I would like to share and explain the principles of Barriere-Freiheitaccessibility.

The overriding principle of Barriere-Freiheitaccessibility is perceptibility. All people should be able to perceive everything within the application. It does not matter which limitation the person has. They should be able to perceive all the information that the application offers. There are precise BITV rules for the principle of perceptibility that you have to follow.

The second principle of Barriere-Freiheitaccessibility is usability. Again, it does not matter what the limitation or disability is. All people should be able to use the application as a whole: All pages, all single views, every subsection, and every single component.

The third principle of accessibility is comprehensibility. The principle of comprehensibility actually says it clearly enough. All people should be able to understand everything. It does not matter on which level you are within an application. It applies from the top page to the lowest content level. Everyone must be able to understand everything. Here, too, a fullfillment of all rules is mandatory. By the way, a special point in the area of comprehensibility is the Easy Language. Easy Language is part of the BITV 2.0 as a supplement.

So that all people understand everything, we should offer the Easy Language. This can happen as an add-on. It is better to translate all content. Offering all levels of a text in plain language is a lot of work. However, this is the only way to ensure that all people can understand everything.

The principle of robustness of Barriere-Freiheitaccessibility refers rather to technical quality. The development of a technical product influences its quality. The principle means that all people can use the product without any problems. Actually only 3 small rules belong to it. However, they have it in itself. In order to be able to use something without problems, it needs a robustly foundation. It is more about the technical components and this basic strength. An app or a website that crashes frequently is less robust. I can ensure robustness through appropriate programming quality.

BITV principle perceptibility

Text alternatives

1.1.1 a Alt texts for control elements
Graphical control elements such as buttons and links need supplementary alternative texts. These have a read-out funtion to blind people when their focus is on the control element. For a link, the target needs a specification. The action takes place via the buttons.

1.1.1 b Alt texts for graphics Graphics
and photos, but also videos, must be provided with alternative texts. Especially for important visual information, these texts are essential for blind people. These texts also have a read-aloud function.

1.1.1 c Empty alt texts for layout
elements Elements that are there to structure user interfaces stand on their own. These should be implemented explicitly free of alternative texts, since they would interfere. Technically, an empty alt attribute in the source code of Internet pages is the solution.

1.1.1 d Alt texts for captchas for identification purposes
Alternative texts are mandatory for the implementation of log-ins via images. Otherwise, the blind person lacks any possibility to participate in the application. A textual alternative that is free of images is mandatory.

1.2.1 Alternative texts for audio files and silent video formats
Images in videos or and the visual aspects of videos require audible alternative texts.
These alternative texts describe to blind people the content of a video. The same is true for deaf people for an audio-only file. Deaf

people also need this textual descriptive alternative.

1.2.2 Subtitles for recorded videos
Subtitles are essential for deaf people. Otherwise, important information for participation is
missing. Subtitles are classically at the bottom of the video.

1.2.3 Audio discription or full-text alternative
These full-text alternatives are complete transcriptions from the audible. For the deaf, the text version from an audio file is especially important and helpful. This way they get an information gain from podcasts, interview or news.

1.2.4 Live subtitles in videos
This type of subtitles in videos are intended for videos of live events. These are e.g. press conference, sports broadcast, technical conference or online seminar. In these video broadcasts, the spoken word comes as subtitles.

1.2.5 Audio-description - also descriptive for visuals everything belongs to a complete audio-description of a video as text-alternative. Therefore, also the visual information needs a description in the text alternative. The filmic work thus becomes a complete textual counterpart. Just as books became films in the past, films now become books.

Customizable

1.3.1 Information relationships (groups and distances)
This criterion has been abolished in the new BITV. However, it is still important. It is about the good design of a digital solution in visually unambiguous groups. According to the Gestalt principles, visually what belongs together belongs together. This is conducive to understanding, information gain and general aesthetics.

1.3.1 a Clear headings according to technical hierarchy
Every digital application needs clear headings as a structure. These headings should be visually recognizable, e.g., via appropriate font sizes. In particular, they should be in the code according to technical hierarchy. For web pages, these are elements like H1, H2, H3 for headings. In other programming languages, the principle is the same, only the elements have different names.

1.3.1 b Lists must be visible and implemented in a technically correct
manner Lists must also be clearly and visually recognizable as such, e.g. by means of list items. In particular, lists need an implementation in a technically correct manner using so-called "list tags".

1.3.1 c Quotations visible and implemented as a quote
Quotations are visually marked with "goose feet" - along with the quoter. The code of Internet pages needs an implementation via the so-called "quote tag".

1.3.1 d Text structure also in programming
The texts of an application must be implemented visually and technically correctly. This includes appropriate structures within the document during implementation. On web pages one must use appropriate HTML elements such as H1, H2, UL or P. Especially the paragraph element is particularly important on web pages for the read aloud mode.
The P tag is necessary for reading text aloud for blind people using arrow keys. Structures are also necessary in PDF documents to make them accessible.

1.3.1 e Data tables implemented correctly
Data tables must be implemented in a visually and technically correct manner. A table should be visually recognizable as such

for the user. However, the implementation with the appropriate HTML tags is particularly important.

1.3.1 f Table cells correctly implemented
The same as for tables also applies to the cells of a table. Here, too, the HTML tags must be set accordingly. Then the content is readable for all people.

1.3.1 g Layout markup free of table
structure The layout of an Internet page must be implemented free of table structures. In former times this was the standard. However, today one uses for it the so-called "DIV tags". Especially for accessible websites modern standard conform HTML is important.

1.3.1 h Labeling of form elements - as label
Form elements such as text fields must be labeled separately in a meaningful way. In this case, the label needs a placement above or next to the form element. The correct HTML element for the label is the so-called label. Please avoid direct labeling within the text input fields.

1.3.2 Meaningful logical order - also technical
A logical order of the individual elements that is comprehensible to users is important. In read-aloud mode, the reading order must make sense. For sighted people, a visually meaningful order is necessary for comprehension. For blind people, the same applies when listening.

1.3.3 Multi-sensory features
The design should be detectable by multiple senses: seeing, reading, and hearing. This means that all content must be usable free of the design and stand on its own.

1.3.4 Display with different orientation and screen size
A flexible display is useful for more than just accessibility. It is the only way that any user can use the IT solution in a meaningful way. He can do so on all devices in all sizes. A website, app or software must work in portrait and landscape. You have to design and program these possibilities throughout.

1.3.5 Input fields for user data convey the purpose
The user must recognize the purpose of the input. They must know the reason for entering their data. This information should be transparent, meaningful and unambiguous.

Distinctive

1.4.1 Colors free of guidance function and only as decoration
User guidance in the digital system should be independent of color information. This is particularly important for people with color vision disorders. There are red-green-blindness and blue-green-blindness as an eye disease. Such people tend to see the world in shades of gray. Colors are definitely allowed and desired, but in a decorative function. In digital solutions, it is important to add additional information to the colors. The solution can be an icon or text.

1.4.2 Enable audio control (on/off/volume)
Users need to be able to control audio output on video and audio files. For control, users need on/off buttons, volume controls, and fast-forward option. These control elements must be accessible and controllable via keyboard.

1.4.3 Contrast strength between foreground and background
Small elements such as text and small graphics must be easily recognizable. For this, they need a contrast ratio of 1 to 4.5 foreground to background.

If the ratio is too weak, an adjustment for the color value or design is necessary.

1.4.4 Modifiable text size up to 200% - ideally visible
The font size of the application must be able to be increased by the user. This is especially true for small fonts. An enlargement to 200 % must be part of the solution. The fonts need therefore a flexible programming - if possible without pixel values. On web pages, users can make the enlargement from the font with the mouse wheel. However, it is better to have a clear element for font enlargement on the user interface.

1.4.5 Do not use font graphics, font as pure text
Avoid using font graphics of any kind. These are graphics where font and text information is included. If possible, use textual information as text only. Otherwise, provide the information as alternative text.

1.4.10 Breaks when changing from view
For views in different sizes the clean text break
is important. A good text flow is very important. It must be fully readable for all users for all text. This is true for all digital media and rendering.

1.4.11 Non-text contrasts
Elements such as graphics, photos and large texts need a contrast ratio of 1 to 3. Only then, an easy recognition by people with contrast vision problems is possible. You can ensure this by changing the color mix or using a contrast switch.

1.4.12 Modifiable font spacing
For good text readability, you need good line spacing. Ideal is the 1.5 line spacing. If this is not available, it must be possible to adjust it. The line spacing must grow with the text, e.g. if the font size is

increased via the browser settings. In general, users must be able to adjust the spacing in the font themselves. The content must remain fully legible and usable.

1.4.13 Optically

Hidden and then automatically displayed elements must be operable. A solution can be, for example, by actively opening them with a mouse click or using the keyboard. It must also be possible to close them actively, e.g. by pressing the escape key.

BITV principle usability

Accessible via keyboard

2.1.1 Keyboard operability ensured
For blind people, control via the keyboard is necessary. They control digital solutions with tab keys, arrow keys and input keys. The IT solution for this keyboard control needs a design and programming according to the rules. A test conduction is possible via independent keyboard operation. Blind typing also increases efficiency in everyday office work.

2.1.2 Protection against possible keyboard traps
With keyboard control, full controllability down to every function is important. Therefore, make sure that the user does not walk into a trap or dead end under any circumstances. Each control loop must be usable all the way to the end. This also applies to operation via the keyboard.

2.1.3 Keyboard shortcuts can be disabled or customized
If IT solutions work with special keyboard shortcuts, they should be customizable or disableableable. Such shortcuts are rather rare for Internet pages. However, it may be more common in professional programs for PCs.

Sufficient time

2.2.1 Time limits can be removed or adjusted
Some web pages or software have a built-in time limit for some actions. This is common, for example, in banking applications or flight bookings. For people with disabilities, this is too fast. They get kicked out before they are done. Therefore, you need to be able to remove these time limits or adjust them.

2.2.2 Avoid or disable
animations Animations make applications attractive. However, they can sometimes interfere with operation. Especially for people with disabilities, animations can be aggravating. Try to avoid animations or make them switchable.

Seizures

2.3.1 Avoid flickering and blinking
For people with seizure disorders, flickering and blinking animations are very bad. This is because they can trigger a seizure. You certainly want to avoid this. Therefore, please design your solution without flickering with short frequencies.

Navigable

2.4.1 Skipping or bypassing element groups
With keyboard control it is necessary to be able to skip some things. Unimportant elements in the control flow sometimes disturb and irritate. Such element groups can then be left out.

2.4.2 Unique page titles and titles in general
The titles in the browser line and in the page header must be unique. They must also be meaningful.
Unique titles are also better for usability and search engines. Unintelligible abbreviations or number sequences in the browser line are therefore disturbing.

2.4.3 Focus sequence logically comprehensible
A logical sequence of the elements is particularly important for keyboard operation. The order in which the respective focus is located must therefore be logical in the operating flow. This must be completely comprehensible by testing and tabbing through.

2.4.4 Link purpose as meaningful text
The purpose of a link must be clearly and meaningful in the caption text. Refrain from using things like “more” or “further”. Tell the reader what is coming.

2.4.5 Multiple ways to access content (Navi, Search, Short)
As the saying goes, “Many roads lead to Rome.” This is also true in digital solutions. Offer your users multiple paths to your content. Then they can choose. These include header navigation, search, content areas or footer area with links.

2.4.6 Labels and headings as meaningful names
Labels and headings in IT solutions should be understandable for everyone. Therefore, please choose understandable names and terms, ideally in plain language.

2.4.7 Enable visible focus as tab location
The user should be able to clearly see his focus when operating. Every element that you tab to must be clearly visible. That is, it must have a clear focus outline - always where you are.

Input modalities

2.5.1 Alternative operation to multi-finger gestures.
An application works through touch on touch monitors. This is also the case on mobile devices. This touch sometimes requires several fingers at the same time. There must be an alternative control option for this. These are usually possible via standard functions. Only in rare exceptions, a separate programming is useful.

2.5.2 Canceling operation by finger on smartphones
On smartphones and tablets, it should be possible to cancel an input by a finger. This happens when the user holds his finger

on a button, for example, and then swipes it down. This way, a cancellation of the action takes place. The triggering of the respective command is then superfluous. This applies to both the finger and mouse pointer. This also applies to the operation on the PCs.

2.5.3 Visible labeling as part of the technical name
A comprehensible name for each control element is necessary. These can be navigation, buttons, but also form elements. In order to be able to address operating elements, they often also need a name to enter. This name must contain the visible name. Otherwise, it is difficult to trigger a button by voice control, for example.

2.5.4 Motion activation can be disabled or with alternatives
Many mobile devices have motion sensors. This is partly practical. However, it is disadvantageous for people with disabilities. It must be possible to switch off this function. There must be alternatives. This applies if an operation takes place on a website.

BITV principle comprehensibility

Readable

3.1.1 Inserting and specifying the main language
A web page is naturally read out by the system in the correct language. For this, the user needs the correct language package on the computer, in this case German. The application must contain the main language as an identifier. Therefore, you need a so-called language tag. In our case, the tag "de" stands for German.

3.1.2 Labeling in foreign languages
If you use technical terms in a foreign language, this must be labeled. English technical terms are common in IT. They must therefore be marked with "en". Then the term will have a correct pronounciation in English in the read aloud mode.

Predictable

3.2.1 No context changes during focusing
A focus in a text field must happen free of context changes. If the user places his mouse cursor there, the content and environment should remain identical.

3.2.2 No context change for inputs
Of course, the same is true much more intensely for input activities in forms. When the user makes the input, change is supposed to happen just below it.

3.2.3 Uniform navigation Uniform
navigation is important for usability and user guidance. This is particularly important in the context of accessibility within IT solutions. The navigation elements must always look the same and be in the same place.

must be recognizable. Visual indicators such as markers or visualized sound signals help to achieve this. These indicators must also be perceptible to blind people.

6.2.3 Inter-operability of real-time text communication
Different systems must work together seamlessly. One must ensure a direct and fast text communication. A solution is to use technical standards.

6.2.4 Reaction speed of real-time text communication
In real-time text communication, the transmission must happen letter by letter This must of course happen at an appropriate speed. This prevents the ongoing conversation from stalling.

6.3 Caller identification
In the case of an incoming call, it must be possible to recognize the caller without barriers.

6.4 Alternatives to speech-based services.
Offering an accessible alternative to input or selection by voice. This is similar to a telephone hotline, "Do you want to be redirected? - Yes!"

6.5.2 Resolution for video telephony
Video telephony is a modern way to communicate at any location. However, the resolution of the videos must be good. This is important so that people can see and understand each other.

6.5.3 Picture refresh rate for video telephony
Good video quality is important for successful transmission. Thus, there is a jerk-free picture. A solution can be a correspondingly high frame repetition frequency.

6.5.4 Synchronicity (simultaneity) in video telephony
Sound and image in a real-time video conference should run cleanly in parallel. A performing test requires a good connection and sufficient bandwidth.

6.5.5Visual display of audio activity
This concerns only web offers with the function of a video telephony. The respective audio activity of the active participant should be visible.

6.5.6 Speaker display for sign language communication.
This applies only to Internet services with the video telephony function. A person who translates audible speech with gestures and facial expressions is doing sign language. The activity status needs to be on a display when someone is signing. This view can have either an independent activation or an automatic start.

Video capabilities

7.1.1 Playback of subtitles
To understand what is happening, deaf people need subtitles in videos. This possibility must be part of the solution - explicitly via a control element.

7.1.2 Simultaneous subtitles
The subtitles must of course be simultaneous, i.e. synchronous with the audible. A solution is using a professional video editing or via appropriate video players. On Youtube, for example, subtitles can be part of the video.

7.1.3 Subtitle preservation
Subtitles need a preservation when modification of videos from the website take place.

7.1.4 Subtitle customization
Users should be able to customize subtitles to their needs. This includes size, contrast, and transparency from background, font or position.

7.1.5 Subtitles
Users should be able to activate voice output of subtitles. The purpose is to be able to translate videos with foreign language. If the audio track and subtitles are in the original language of the website, then the rule does not apply.

7.2.1 Playback of audio description
With an audio description, the entire event is described via an additional audio track. If a video comes with audio descriptors, these must have a mode for on and off switching.

7.2.2 Synchronous audio description
The text alternative should run synchronously with the image and audio track in the video. This also ensures interaction between text description and video.

7.2.3 Preservation of audio description
When videos with audio descriptors are modified or used by the website, these text alternatives must be preserved.

7.3 User elements for subtitles and acoustic image description
The accessible offer for video files should also be called up and controlled. Corresponding control elements must be available in the user interface for this purpose.

User-defined settings

11.7 User-defined settings

Disabilities and limitations are often very individual. For the accessible experience, users should therefore also be able to make their own settings. This is possible within the browser or the IT solution itself. The Internet page or program should then adopt these settings.

Authoring Tools

11.8.2 Accessible content creation

In many IT solutions, users have the option of creating content themselves. This can be news articles, their own subsections or complete web pages. The environment for this ranges from a small editor window to a large response system. The authoring tool must enable the creation of accessible content. The creation of content in the authoring tool must also be possible in an accessible way.

11.8.3 Maintaining accessibility information during transformation

A transformation of a file is a change of file structure or file format. Of course, the accessibility information needs a full preservation.

11.8.4 Repair assistance

Accessible help are mandatory within authoring tools in the event of incorrect entries. This can be incorrect entries or missing entries. As the person concerned, the user should also be able to produce content independently. Of course, this content should also be accessible.

11.8.5 Templates
If you want to offer templates for creating content, you must also take accessibility into account. You must then offer at least one template per format that enables accessible content.

Documentation and support

12.1.1 Documentation of special applications and Accessibility
In the case of self-programmed operating elements, provide documentation on Accessibility. This must also be accessible.

12.1.2 Accessible documentation
The documentation should of course also be accessible. Otherwise, it is of little use. Here, of course, the implementation depends on the final format of the documentation. One can offer documentation in paper form, PDF, web page or video.

12.2.2 Technical support
Support should be able to provide help on the accessibility features of the website. Technical support is mandatory in an accessible manner to ensure support. This applies, for example, to e-mail inquiries or chat communication.

12.2.3 Effective communication
When offering accessible assistance, it should be practical. It only helps the help-seeker if he or she gets the help promptly. The help should be available on different channels. This means, for example, via telephone, e-mail or chat.

12.2.4 Documentation provided by support
It is great if the service department provides technical documentation. This should be available as a help file. It needs an implemented barrier-free solution - in any end format.

correspond to the WCAG criteria as far as possible. You can use such things for yourself in a pre-test with a clear conscience.

Invitation to reflect and implement
Familiarize yourself with the tools mentioned. Open the browser, press F12 and look inside. Load the Chrome extension and rate colors. Alternatively, turn on the Narrator or other read-aloud tools and listen. Look at your own web page. Let us go!

Space for your notes:

Invitation to reflect and implement
Look at an Internet page and check the accessibility yourself. Test important main and sub-pages for the BITV criteria. I know this is difficult and a big task. However, I am sure you can do it. Remember: it is easier with a structured document.

Space for your notes:

Understanding a BITV test report

Finally, it is about the official test report according to the BITV or the WACG. I would like to help you to understand, evaluate and use it. Please note that my explanations are a development-accompanying test report. This is usually for third parties who clean up errors according to BITV. This can be your colleagues, for example. This can also be the advertising agency responsible for the Internet page. The developers of software solutions or apps are also proper addressees. Therefore, if you have to hand over such test reports, you should understand them.

I am only concerned with the test report. Certification with the BITV seal is another matter. This certification is the exclusive responsibility by the BITV test centers. Only these bodies with their test partners perform a final test for certification. The BITV test center names the partners and refers you there. The named partners can then perform a test for BITV certification.

At this point, I would like to warn you to act hastily. An audit appointment can take a long time and the BITV audit can be very expensive. Therefore, it is better if you are well prepared. It makes sense that you understand something about these development-accompanying test reports. I am happy to help you together with the companies HeiReS and IT hilft gGmbH. I can also perform such development-accompanying BITV tests myself. Ideally, you develop an eye for BITV violations yourself. Otherwise, you pay for things you could have discovered yourself. That would be a real pity.

It is therefore helpful if you understand how a BITV test report is structured. I would like to explain this to you again, using our example. For our platform "dresden.familie-und-beruf.online" we wrote a BITV test report. If you go to this page, you will be able

to follow my advice better. You can even look at our BITV test report at the accessibility statement.

I passed this BITV test report on to my colleagues from design and development. With it, they were even able to fix many of the BITV errors.

A BITV test report has a very clear structure, which should always be like this. The introduction contains the test company and tester, the project itself, the test date and test procedure. You can also find the test order or the order donor.

In our example, the Heinrich & Reuter Solutions GmbH is the testing company. It also includes the direct contact person who wrote the report. In this case, it is me - Peggy Reuter-Heinrich with my company e-mail address. The client in this case was the non-profit IT hilft gGmbH. This company operates our platform for better compatibility of family and career. In our example, the BITV test refers to the Internet page "dresden.familie-und-beruf.online".

The test period was in spring 2022. This is important because a BITV test is always only a snapshot. The test procedure used was a final test for the BITV criteria. The test order was only the check of the internet page for the BITV criteria. The mobile apps and the software were not part of it. The mobile apps or the software belonging to the project would be different tests.

The individual pages checked are always in the report. In our example, these were the start page, chapter page, subpage, address page, city page and form page. There should also be a link to these pages for verification. Ideally, images of the individual checked pages should also be part of the report. These images show what they looked like at the time of the testing.

After this introduction comes the actual BITV test result in three large blocks. These split up into the fulfilled and the unused criteria. The largest block, the incorrectly implemented points, comes at the end. These pages actually still need improvement.

The BITV has seven classifications of how well the checked application meets the BITV criteria. The BITV differentiates "fulfilled, rather fulfilled, partially fulfilled". In between there is "not applied" as unused criteria. On the other hand, there is "partly not fulfilled, rather not fulfilled, not fulfilled". It often happens that single pages get the correct allocation to BITV rules. A few pages well implemented, but the rest wrong, then the page fails. In the overall view of all pages, this fine weighting then makes sense. In the summary, it sums up to these three major classifications.

For the positively fulfilled BITV test, each criteria comes in connection with the numbers. In addition, pages where everything is good get a clear marking. The presentation forms are different - sometimes text, sometimes table. We prefer tables, because these are nice and clear.

The second block contains the unused BITV criteria. For example, if an Internet page is free of videos, then these rules are unused. Unused things still have a positive evaluation. They are thus free of rule violations. I like to say "If you do nothing, you do nothing wrong. Here you get points for doing nothing."

At the end comes the big block with the poorly implemented BITV rules. This is a more or less large error list. It describes exactly what still needs a review - and where. For the first overview, we have also made a table here. There are test criteria, test numbers, page numbers and the severity of the rule violation.

Now comes what is essential in understanding BITV test reports. Each identified violation of a BITV rule needs a justification. First, I write the fulfillment characteristic belonging to the BITV rule. In this way, everything is better comprehensible. Then comes very concretely, what is wrong on the individual pages. This is in detail with precise reasons. If the errors occur on different pages, I like to use small tables. To support this, helpful recommendations for action are part of the deviations found.

In our example, I had noticed that the images are missing some alternative texts. For example, audible texts are missing from some illustrative photos or logos. My recommendation for action was "Please add the missing alternative texts to the images. It makes sense to enter the alt texts directly at the image in the media administration."

You usually receive such BITV reports when a project is to be certified. However, you already know that you get the certificate only for error-free solutions. The reports are therefore more than useful as development-accompanying BITV tests. Only this way, the IT creators also have the chance to correct the errors. Only then can an IT project get a certification as "Barrier-free according to BITV".

I am aware that I accessibility according to BITV is a lot of work. Therefore, I would like to remind you sincerely of the great benefit. You are an active co-creator of successful inclusion and a people-friendly digital world.

So approach the task with cheerfulness!

Invitation to reflect and implement

Now you know how such a preparatory, development-accompanying test report look like. After reading this, you will be able to judge such BITV test reports. I am very pleased if I have managed to motivate you. So go ahead and tackle this big task. Implementation and activity is the most important thing for accessibility. If you still have problems and questions about it, I will be glad to help you. Send me an email to: buch@heires.net

Space for your notes:

Important contacts for successful inclusion

Representatives for inclusion and people with disabilities

At federal and state level

Fortunately, our government attaches great importance to successful inclusion. At the federal level, there is therefore a superordinate commissioner for inclusion. This person is responsible for all matters concerning people with disabilities. Inclusion commissioners or commissioners for people with disabilities also exist at state level. Each federal state has its own commissioner for the interests of people with disabilities. You are welcome to contact the responsible commissioner for assistance.

- Federal Representative
  Mr. Jürgen Dusel
  Federal Government Commissioner for Matters relating to Persons with Disabilities
  Mauerstrasse 53, 10117 Berlin, 030 221 911 006
  presse@behindertenbeauftragter.de
  https://www.behindertenbeauftragter.de/

- State of Baden-Wuerttemberg
  Ms. Simone Fischer
  State Government Commissioner for the Interests of Persons with Disabilities
  Else-Josenhans-Strasse 6, 70173 Stuttgart, 0711 279-3360
  poststelle@bfbmb.bwl.de

https://sozialministerium.baden-wuerttemberg.de/de/ministerium/landes-behindertenbeauftragte/

- Free state of Bavaria
  Mr. Holger Kiesel
  Representative for the interests of people with disabilities
  Winzerer Straße 9, 80797 Munich, 089 1261-2799
  Behindertenbeauftragter@stmas.bayern.de
  https://www.behindertenbeauftragter.bayern.de

- State of Berlin
  Ms. Christine Braunert-Rümenapf
  State Commissioner for People with Disabilities
  Oranienstrasse 106, 10969 Berlin, 030 9028-2918
  lfb@senias.berlin.de
  https://www.berlin.de/lb/behi/

- State of Brandenburg
  Mrs. Janny Armbruster
  Representative of the State Government for the Interests of People with Disabilities
  Potsdam, 0331 866-5014
  landesbehindertenbeauftragte@msgiv.brandenburg.de
  https://msgiv.brandenburg.de/msgiv/de/beauftragte/landes-behindertenbeauftragte/

- State of Bremen
  Mr. Arne Frankenstein
  State Representative for the Disabled
  Teerhof 59 (Beluga building), 28199 Bremen, 0421 361-18181
  office@lbb.bremen.de
  https://www.behindertenbeauftragter.bremen.de

- State of Hamburg
  Ms. Ulrike Kloiber

Senate Coordinator for Equality for People with Disabilities
Osterbekstraße 96, 22083 Hamburg, 040 42863-5725
behindertenbeauftragte@bwfgb.hamburg.de
https://www.hamburg.de/skbm/

- State of Hesse
  Ms. Rika Esser
  State Representative for People with Disabilities
  P.O. Box 3140, 65021 Wiesbaden, Germany
  LBB@hsm.hessen.de
  https://soziales.hessen.de/ueber-uns/beauftragte-fuer-menschen-mit-behinderungen

- State of Mecklenburg-Western Pomerania
  Mr. Matthias Crone
  Ombudsman
  Schloßstraße 8, 19053 Schwerin, 0385 525-2709
  post@buergerbeauftragter-mv.de
  https://www.buergerbeauftragter-mv.de/

- State of Lower Saxony
  Ms. Petra Wontorra
  State representative for people with disabilities
  P.O. Box 141, 30001 Hanover, 0511 120-4007
  landesbeauftragte@ms.niedersachsen.de
  https://www.behindertenbeauftragte-niedersachsen.de/DE/Home/home_node.html

- State of North Rhine-Westphalia
  Ms. Claudia Middendorf
  Representative for people with disabilities
  Fürstenwall 25, 40219 Düsseldorf, 0211 855-3008
  kontakt@lbbp.nrw.de
  https://www.lbbp.nrw.de

- State of Rhineland-Palatinate
  Mr. Matthias Rösch
  The state representative for the interests of people with disabilities
  Bauhofstraße 9, 55116 Mainz, 06131 165342
  lb@mastd.rlp.de
  https://inklusion.rlp.de/de/landesbeauftragter-landesteilhabebei-rat

- State of Saarland
  Prof. Dr. Daniel Bieber
  Representative for the interests of people with disabilities
  Franz-Josef-Röder-Strasse 7, 66119 Saarbrücken, 0681 5002-545
  d.bieber@landtag-saar.de
  https://www.landtag-saar.de/landtag/beauftragter-fur-belange-von-menschen-mit-behinderungen/

- State of Saxony
  Mr. Michael Welsch
  State representative for inclusion of people with disabilities
  Archive Street 1, 01097 Dresden, 0351 564-10715
  info.inklusionsbeauftragter@sk.sachsen.de
  https://www.sk.sachsen.de/landesinklusionsbeauftragter.html

- State of Saxony-Anhalt
  Dr. Christian Walbrach
  Representative for the Disabled of the State Government
  Turmschanzenstraße 25, 39114 Magdeburg, 0391 567-4564
  behindertenbeauftragter@ms.sachsen-anhalt.de
  https://behindertenbeauftragter.sachsen-anhalt.de/

- State of Schleswig-Holstein
  Mrs. Michaela Pries
  State representative for people with disabilities
  Karolinenweg 1, 24105 Kiel, 0431 988-1620

lb@landtag.ltsh.de
https://www.landtag.ltsh.de/beauftragte/beauftragte-men/

- State of Thuringia
  Mr. Joachim Leibiger
  State representative for people with disabilities
  Hässlerstrasse 6, 99096 Erfurt, 0361 573-118000
  kontakt@tlmb.thueringen.de
  https://www.tlmb-thueringen.de

Municipal Inclusion Officer

Successful inclusion happens locally and on the ground, directly from person to person. Larger cities in particular take the issue of inclusion very seriously. That is why larger cities usually have representatives for people with disabilities or inclusion officers. These are direct contacts for the people affected. They are often also responsible for implementing accessibility.
In doing so, they assume a coordinating and advisory function. The municipal integration offices also perform similar tasks in some cases.

Here you will find the integration officers of the largest German cities. They can best help you with successful inclusion.

- Berlin (State of Berlin)
  Population: 3,664 thousand people
  Mrs. Christine Braunert-Rümenapf
  State representative for people with disabilities
  Oranienstrasse 106, 10969 Berlin, 030 9028-2918
  https://www.berlin.de/lb/behi/

- Hamburg (State of Hamburg)
  Population: 1,852 thousand people
  Mrs. Ulrike Kloiber

Senate Coordinator for Equality for People with Disabilities
https://www.hamburg.de/skbm/

- Munich (Free state of Bavaria)
  Population: 1,488 thousand people
  Mr. Oswald Utz
  Honorary Representative for the Disabled
  https://bb-m.info/

- Cologne (State of North Rhine-Westphalia)
  Population: 1,083 thousand people
  Ms. Mirjam Tomše
  Representative for the Disabled Department of Social Affairs, Integration and Environment
  https://www.stadt-koeln.de/service/adressen/01225/index.html

- Frankfurt am Main (State of Hesse)
  Population: 764 thousand people
  Mr. Sören Schmidt
  Representative for the Disabled
  https://frankfurt.de/

- Stuttgart (State of Baden-Württemberg)
  Population: 630 thousand people
  Ms. Irina Lackner
  Representative for the interests of people with disabilities
  https://www.stuttgart.de/vv/verwaltungseinheit/beauftragte-fuer-die-belange-von-menschen-mit-behinderung.php

- Düsseldorf (State of North Rhine-Westphalia)
  Population: 620 thousand people
  Ms. Martina Skender
  Office of the Advisory Council for the Disabled
  https://www.duesseldorf.de/behindertenrat.html

- Leipzig (Free state of Saxony)
  Population: 597 thousand people
  Ms. Kerstin Baldin
  Representative for people with disabilities
  https://www.leipzig.de/buergerservice-und-verwaltung/

- Dortmund (State of North Rhine-Westphalia)
  Population: 587 thousand people
  Mrs. Kathrin Rasche
  Disability Officer
  https://www.dortmund.de/de/leben_in_dortmund/

- Essen (State of North Rhine-Westphalia)
  Population: 582 thousand
  Mr. Gregor Hüsken
  People with Disabilities Coordinator in the Office for Social Affairs and Housing
  https://service.essen.de/detail/-/vr-bis-detail/mitarbeiter/26852/show

- Bremen (State of Bremen)
  Population: 566 thousand people
  Mr. Arne Frankenstein
  State Representative for the Disabled
  https://www.behindertenbeauftragter.bremen.de/

- Dresden (Free state of Saxony)
  Population: 556 thousand people
  Mrs. Manuela Scharf
  Representative for people with disabilities and senior citizens
  www.dresden.de/de/leben/gesellschaft/behinderung/beauftragte.php

- Hannover (State of Lower Saxony)
  Population: 534 thousand people
  Mrs. Andrea Hammann
  Representative for people with disabilities

- Nuremberg (Free state of Bavaria)
  Population: 515 thousand people
  Mrs. Nina Brötzmann
  Inclusion Officer
  https://www.nuernberg.de/internet/sozialamt/inklusionsbeauftragte.html

- Duisburg (State of North Rhine-Westphalia)
  Population: 495 thousand people
  Mrs. Nicole Seyffert
  Inclusion Officer
  https://www.dortmund.de

- Bochum (State of North Rhine-Westphalia)
  Population: 364 thousand people
  Mrs. Ulrike Salomon-Faust
  Inclusion Officer

- Wuppertal (State of North Rhine-Westphalia)
  Population: 355 thousand people
  Mrs. Sandra Heinen
  Disability Officer
  https://www.wuppertal.de/vv/produkte/201/201.PB_Behindertenbeauftragte2.php

- Bielefeld (State of North Rhine-Westphalia)
  Population: 333 thousand people
  Mrs. Patrizia Wonderschütz
  Office for Social Services - Partial Counselling -
  https://www.bielefeld.de/node/10242

- Bonn (State of North Rhine-Westphalia)
  Population: 330 thousand people
  Ms. Gleich
  Health Promotion Unit
  https://www.bonn.de/vv/produkte/Beratung-fuer-Menschen-mit-Behinderung.php

- Münster (State of North Rhine-Westphalia)
  Population: 316 thousand people
  Mrs. Doris Rüter
  Representative for people with disabilities
  https://www.stadt-muenster.de/sozialamt/menschen-mit-behinderungen

- Mannheim (State of Baden-Württemberg)
  population: 309 thousand people
  Mrs. Ursula Frenz
  The representative for the interests of people with disabilities
  https://www.mannheim.de/de/service-bieten/menschen-mit-behinderung/beauftragte-fuer-menschen-mit-behinderungen

- Karlsruhe (State of Baden-Württemberg)
  Population: 308 thousand people
  Mrs. Ulrike Wernert
  Municipal commissioner for the disabled
  https://www.karlsruhe.de/bildung-soziales/integration-chancengerechtigkeit/kommunale-behindertenbeauftragte

- Augsburg (Free state of Bavaria)
  population: 295 thousand people
  Mrs. Talio
  Advisory Council for the Disabled
  https://www.augsburg.de/buergerservice-rathaus/rathaus/beiraete/behindertenbeirat

- Wiesbaden (State of Hesse)

Links and sources

Related websites from the author

My website as a personality and accessibility expert
www.peggy-reuter-heinrich.net

Accessibility services from the IT expert company HeiReS
www.heires.net/en/accessibility

Successful inclusion with the non-profit IT hilft gGmbH
www.it-hilft.de/barrierefreiheit

Source information

My online training "Accessibility in and with IT"
www.heires.net/en/online-course-accessibility-with-and-in-it

My book "Digitale Barrierefreiheit für alle!".
www.heires.net/buch-barrierefreiheit

The BITV test platform for paid certification
www.bitvtest.de

Plain language from the Federal Ministry of Labor and Social Affairs
www.BMAS.de

The new law for accessibility - also BMAS
www.bmas.de/DE/Service/Gesetze-und-Gesetzesvorhaben/barrierefreiheitsstaerkungsgesetz.html

The European Accessibility Act from the EU (in English)
ec.europa.eu/social/main.jsp?catId=1202

Possibilities for more accessibility

The book "Digital Accessibility for All!"

Our non-fiction book is the perfect everyday companion and provides suggestions for direct action. This way, you can actively shape successful inclusion in digital life. You will receive inspiring food for thought, in-depth knowledge and valuable tips. The author Peggy Reuter-Heinrich has deliberately written the book in easy-to-understand language. This makes the rather complex topics of IT and inclusion easy to understand. You will learn how you can actively implement participation in your digital solutions. Participation for all people is a human right. This also applies to digital life. Treat yourself and others to this inspiring introduction to such an important topic. As a reader of this book, please ask for a discount for repeat orders via buch@heires.net.
www.heires.net/en/accessibility-book

Online training "Accessibility in and with IT"

Conveniently access specialist knowledge at your own pace. The topic "Accessibility in and with IT" is particularly important for companies and IT creators. The European Union has already announced the requirement for accessibility. Those who ignore accessibility in their IT solutions will be left behind from 2025. If you have to deal with digital accessibility, this advanced training is just right for you. The course helps you understand disabilities as well as the overall inclusion context. You will also learn how to implement accessibility in IT solutions. Learn about Easy Language, the implementation of BITV rules and how to conduct a BITV audit. You will complete this course after interactive tests with a certificate of successful participation. Acquire this important knowledge and assume social responsibility. As a reader of this book, please inquire about a discount for the online course via buch@heires.net.

videos. You will receive a video file from us that you can use immediately. This is completely stress-free for you and also cost-effective.
www.heires.net/en/explainer-videos
www.it-hilft.de/erklaervideos

Professional BITV tests provide security

According to the worldwide Convention on Human Rights, digital solutions must also be usable by people with disabilities. The requirement for accessibility applies to Internet pages, apps or software, but also PDFs and media. For digital accessibility, the BITV specifications must be met. A BITV test including report offers you security for your digital solutions. We carry out these tests quickly and cost-effectively for you, including all 98 BITV criteria. A comprehensible professional test report identifies problems and provides assistance. You receive recommendations for action based on expert knowledge and experience. Show your clients that inclusion is feasible through BITV compliance. Take responsibility for the accessibility of your IT with our help. This way, you can easily manage your way to legally compliant accessibility.
www.heires.net/en/bitv-pre-tests-2
www.it-hilft.de/bitv-pre-tests

We make PDFs BITV-compliant barrier-free

When you think of PDFs, you tend to think of print derivations. But PDFs are also normal digital solutions - as well as Internet pages or apps. Therefore, PDFs must also be designed and implemented barrier-free. This way, they become available to all people - as implemented human rights. Accessible PDFs are already mandatory for the public sector since 2019. For the private sector, the requirement will come sooner than

expected. As experienced media designers, we have mastered the corresponding design and implementation of the PDF format. We will be happy to support you in creating barrier-free conversion of your PDFs.
www.heires.net/en/accessible-pdfs

2-day-seminary "Accessibility according to BITV"

Many Internet pages or mobile applications are now supposed to be barrier-free. However, the required sound knowledge on the subject of accessibility according to BITV is also missing among IT creators. In a practical 2-day seminar you will gain the knowledge edge in accessibility. You will receive theoretical basic knowledge and practical help along your individual problems. Solution-oriented and close to your own needs, you will develop the topic as a whole. I personally conduct this training with passion and expertise. It is a mixture of theory with practical implementation. You will gain knowledge how to design, develop and test your IT-projects barrier-free. Besides gaining knowledge, you will also get many further-usable results.
www.heires.net/en/2-day-training-accessibility-in-and-with-it

Expert performance in design and development

Individual consulting on accessibility for IT projects is often necessary for success. Professional services in inclusive design or accessible development also help to achieve accessibility.
We are happy to support you. We advise you on requirements formulation and holistic UX conception. We test and evaluate according to BITV - from prototypes to existing software.
We help with the implementation of accessibility and establish standards with you. We deliver BITV-compliant inclusive UI design that is attractive and modern. And we consistently develop accessibility for all platforms, if desired. This makes your products