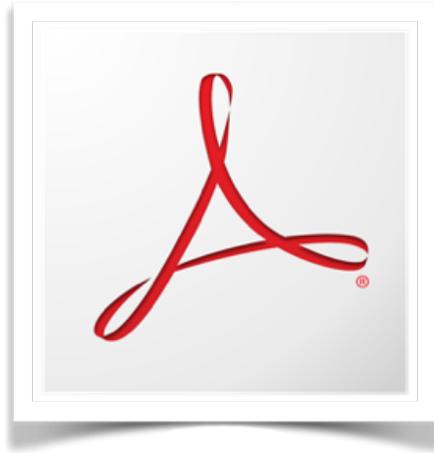# Inclusive PDF by Design

Presenter Information

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Beginning with the Why

Simon Sinek's TED Talk: How great leaders inspire action.
(18 minute video with subtitles, transcript)

There are approximately, 56.7 million people in the U.S. who report having a disability. That is 1 in 5 Americans. (Source: U.S. Census Bureau, Americans with Disabilities, PDF, 2010). Would a business turn away 1 in 5 of its potential customers? Would you turn away 1 in 5 of your potential stakeholders (funders, allies in advocacy, etc.)?

By making your content inclusive, you increase your reach!

Beyond people with disabilities, inclusive design is important because:
- Anyone can have an injury or illness that results in a temporary disability (a broken arm that makes typing difficult, for example).

- We are all aging, and as we age it is more likely that we will develop a disability (according to the UN, [46% of people over the age of 60 have some type of disability](#)).
- We are using technology on the go, and this means the environment is not always optimal for the tasks we want to accomplish. An example is trying to read on a tablet outdoors. The bright sun can create glare that makes reading the text more difficult.

The Portable Document Format (PDF)

PDF has been an open standard since 2008. Among its benefits: it preserves the visual formatting, and it includes support for security (you can limit editing of the PDF document).

But there are also some drawbacks to PDF:
- It can be difficult to consume on mobile devices with small screens.
- Support on some platforms is uneven. On the Mac, you can access the content of a PDF with Preview, but not all of the navigation features are exposed.
- There are usability concerns related to the fact that PDFs sometimes open in a separate window or player (it breaks the back button, may confuse users of some assistive technology).

Best practice: provide some or all of the content in an alternative format (HTML has great support across assistive technologies). See [SETDA's State Procurement Case Studies](#) for an example.

Not all PDFs are the same. There are at least three types:
- A PDF created from a scanned document without [Optical Character Recognition](#) or OCR. For someone who is blind, this would be the equivalent of handing them a blank page. The assistive technology, known as a screen reader, would not be able to read the document beyond the title.
- A PDF with OCR: I would compare this to listening to the information on cassette (for those of us who remember the 80s). You can certainly access all of the information, but going to a specific point in the recording is not as

easy (it will probably require a few presses of the fast forward or rewind buttons until you get it just right).

- A tagged PDF: this is the equivalent of a CD. Not only is all of the information accessible, but you can also quickly and accurately navigate to any chapter/track using the controls in your player. A PDF that includes properly tagged headings behaves in much the same way for a screen reader user. A keyboard shortcut allows these users to bring up a list of headings that can be used to skip to any section of the document.

Tags: behind the scenes markup that provides additional functionality for assistive technology users. Like the foundation and the framing on a home, the structure provided by tags ensures there is a strong foundation for accessibility.

A Few Best Practices for Accessible PDFs

Most PDF accessibility is invisible – it will not impact your design because it is only exposed to assistive technology users.

Three examples:
- Alternative text for images: these descriptions of the information conveyed to someone who is blind are only available when screen reader software reads the page aloud.
- Heading tags: while we see the formatting of the text (which is bigger and bold), the H tags that provide the extra navigation for screen reader users are not visible.
- Table structure: TH tags associate the cells in the table with their corresponding column headers for someone who is not able to quickly scan the table visually to determine that relationship.

How to Get Started with PDF Accessibility

A workflow:
1. Optimize the source document (in MS Word, InDesign, etc.)
2. Export as PDF
3. Run the Accessibility Check in Adobe Acrobat
4. Touch Up the Tags and Reading Order in Adobe Acrobat

Optimize the Source Document
Add alternative text to images
To add alternative text to images in MS Word:
1. Right-click on the desired image.
2. Choose Format Picture from the contextual menu.
3. Select the Layout and Properties pane (third from the left).
4. Enter the appropriate alternative text in the Description field.

To add alternate text in InDesign.
1. Select the image and choose Object, Object Export Options.
2. Select the Alt Text tab.
3. Choose "Custom" from the Source pulldown menu.
4. Enter the appropriate alternative text in the text area and choose Done.

What makes good alternate text – 3 Cs: concise, content-based, contextual.
- The description should be concise – no more than a sentence (think a Tweet under Twitter's old 120 character limit).
- The description should emphasize the idea or concept the image represents over its appearance.
- The description should take the surrounding text into account and avoid redundancy. If the image is already described in the text, then an even more concise description is possible (e.g. "as described in Figure 1a").

Additional Information on alternative text from WebAIM and the Diagram Center.

Use styles to mark up headings
As you mark up the headings, make sure they are in order (an H3 does not come before an H2).

To mark up text as a heading in MS Word (this is just one way):
1. Select the heading text and style as desired.
2. Right click the desired style in the ribbon and choose Update to match selection.
3. Go through the document and choose each instance of heading text, then select the appropriate heading from the ribbon. The style will be applied to the selected text each time you do this.

In InDesign you [map paragraph styles to their appropriate PDF tags](#).

Add headers to tables

First make sure you create the table by "Inserting" rather than "Drawing." Drawn tables are on a separate layer of the document that is not accessible to AT. Once you have inserted the table:

1. Right click the table and choose Table Properties.
2. Select the Row tab.
3. Make sure "Repeat as header row at the top of each page" is selected.

In InDesign:

1. With the table selected, choose Table, Table Options.
2. In the Headers and Footers tab, enter the number 1 for Header Rows.
3. Under Header, choose "Once per page" for Repeat Header.

Export to Tagged PDF

For best results, use the PDF Maker (Acrobat in the MS Word Ribbon) that is available when you have Adobe Acrobat installed. When you select Preferences, look for the following options that should be enabled:

- Enable Accessibility and Reflow with tagged Adobe PDF
- Create Bookmarks
- Add Links

In InDesign, choose Export to Interactive PDF, then make sure the following are selected:

- Create Tagged PDF
- Use Structure for Tab Order

Run an Accessibility Check in Acrobat

1. Choose Tools, Accessibility.
2. Select Full Check.
3. Choose Start Checking.
4. Review the report.

The checker will flag some items as "Needs Manual Check." These are features (color contrast, reading order) that are beyond the capabilities of the checker.

Touch Up the Document in Acrobat

The area that will need the most attention when touching up a document in Adobe Acrobat is likely to be the reading order. There are two panels that determine reading order in Acrobat:

- The Tags panel determines the reading order for screen readers.
- The Order panel determines the reading order when Reflow is enabled in Acrobat Reader. Reflow linearizes the content and displays it in a single column.

The problem is that the two panels do not stay in sync. I would prioritize the reading order in the Tags panel. Issues with reading order have an impact on all readers, but they are even more problematic for screen reader users.

I will also use the TouchUp Reading Order Tool (TURO) to mark up decorative images as "artifacts" – this lets screen readers know the images are decorative and should be ignored.

For checking color contrast, you can use free tools such as the Colour Contrast Analyser (CCA) from Paciello Group (Windows, Mac) and the WebAIM Contrast Checker (Web).

As a final step, I always make sure the document includes good metadata (a descriptive title, the name of the author and a list of appropriate keywords), and the document language has been specified (this helps screen readers select the appropriate voice): choose Document Properties, Advanced, Language.