

ACCESSIBLE DIGITAL DOCUMENTS

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Learning Goals

- Understanding of the needs of people with disabilities.
- Assistive technologies - AT.
- What are digital documents & how to make them accessible to all.
- Work flows that might work.
- Where are the resources?

People

- Blind & low vision.
 - Braille. Can be hard-copy or “refreshable.”
 - Large Print. Can be hard-copy or “digital.”
 - Screen readers are AT that:
 - Converts text-to-braille or text-to-speech.
 - Provides a means of Navigation.
- Deaf & Hard of Hearing.
 - Media contacting “Spoken words” need:
 - Captioning – video with spoken word content.
 - Transcripts – audio only content.
- Mobility
 - Switch technology (Stephen Hawking).
- Cognitive.
 - Many and varied.

Why?

- Increase access to all...
- ...oh, and it's the law.
- “Equivalent content.”

Approaching Accessibility

- Everything is in flux. Technology is changing, techniques are changing, needs are changing.
- You can never know everything. Rapidly growing field.
- People change...not that any two people are the same, but evolution does take place.
- Moving target...

Digital documents are...

- Word processed documents (e.g., MS-Word).

- Portable Document File (PDF) documents.
- Presentational (PowerPoint).
- Spreadsheets (Excel).
- Web documents (e-mails, videos, surveys, etc.).

Word Processors

- MS Word (PC and Mac).
- LibreOffice Writer (PC, Linux and Mac).
- iWork – Pages (Mac only).
- Google Docs and other “cloud-based” products (all platforms).

Accessibility issues for word processed documents

- Navigation for screen reader users.
- Content order.
- Proper labeling of “objects.”

Hit P with your best shot

- HIT-P
 - Headings
 - Images
 - Tables
 - Presentation

Headings (H)

- These are important for screen reader users because they are often used as a way to navigate around the document and “browse” the content.
- Use Style/Heading design feature as this inserts semantic “hooks” that help the user understand the document.
- Don’t just enlarge text as this provides no semantic assistance.

Images (I)

- All Images need Alternative (ALT) Descriptions. These provide information and meaning to people using screen reader assistive technology (AT).
- What makes up a good ALT Description? I recommend using something pithy and to the point. Not too long, not too short.
- No “Null” ALT in Office suites. The Null ALT comes from the world of HTML (web page) coding. In HTML design the developer can use ALT="" – the null tag which causes the screen reader AT to simply skip over the image. This can be useful when the image is simply a “pretty picture” and provides no substantial meaning to the content of the document.
- In MS-Word (Office), the software provides an option of adding a “title” and a “description” to images. The use of the title is optional; the description is essential as that’s what the AT will read.

Tables (T)

- Tables should only be used ONLY to present data (not for formatting or layout).
- Tables need “headings” – information at the top of the column or sometimes in the first column that identifies the data in the chart.
- Headings are essential for navigation and understanding for users of screen readers. In JAWS, the leading screen reader AT for Windows, there is a special “mode” for viewing tabled content that assists the user.
- If a large amount of data needs to be presented, it would be better to use a spreadsheet and provide that as an additional document.

Presentation (P)

- The use of background images (e.g., watermarks) in either electronic or print documents should always be avoided. These colorful features have become somewhat popular in some e-mail applications (often referred to as “stationary”). It’s generally a good idea to refrain from using these features altogether.
- Don’t use “text boxes” or inserts that may mess up reading order. Avoid these at all costs.
- Equally you should take care to ensure that your documents provide sufficient contrast between the text and the background.
- The use of color text can often be problematic for persons with color blindness and should be avoided. These colorful features have become somewhat popular in some e-mail applications (often referred to as “stationary”). It’s generally a good idea to refrain from using these features altogether.
- From a usability perspective, it is a good idea to view your document in monochrome by printing it out on a black and white printer. If you have used colored features in your document (e.g., colored charts and graphs) these may be distorted and illegible when printed in black and white.
- Try to avoid putting URL (web site links) into the document in “raw form” – i.e., <http://www.website.com/stemplatemapper.jsp?id=pcat17080&> and use the “hidden” link feature. Best to take some descriptive text and make that the link. Example, “Here is a link to the Maine AIM Program website...” This is easier to read and provides additional information to the user as to where the link leads to.
- If you have to include an actual URL, leave off the http:// and the www as browsers have gotten pretty good at figuring out what is a link. Example: apple.com

Final Thoughts – Word Processors

- Use the MS Office Accessibility Checker
- Details – see below – page 10.

Presentation – PowerPoint

- Think twice and then think again...
- Develop a handout/speakers notes...

- Think one more time...

If you must...

Accessibility issues for Presentational Applications

All of the same issues for word processor documents also apply to Presentation documents.

The following are other considerations:

Accessibility

If you absolutely need to share your slides, you must ensure that the file is accessible.

Preferred method would be to create a web page with the content or a Word document handout. If you must share, these are what you must do:

1. Every image has an Alternative Description (ALT). Must make sense.
2. Every object (Shapes, SmartArt, charts, photos, videos) has an ALT.
3. Title for every page. Must be unique.
4. One theme (one font set, one color set, one background set).
5. Use high contrast theme colors and check in grayscale.
6. Use slide layout templates (see New Slide down arrow).
7. Use bullets for conveying information – use capitals and periods.
8. For flowcharts – use one image with complete ALT.
9. Check the Outline View to see what a screen reader sees. If there is nothing in the Outline, there is nothing for the screen reader to see.
10. Use the MS-Office Accessibility Checker.
11. Use embedded hyperlinks.
12. Check reading order (if possible).
13. Include captioning for all videos; transcripts for all audio.

Accessibility 2

Don't do or avoid doing these...

- Hyperlinks (<http://www.blahblahblah.com/34234234?=&hop40>).
- Backgrounds that reduce contrast
- Text boxes. Use the slide layout templates.
- Complicated layout/design/graphics/charts/tables
- Complex flowcharts
- Page/slide numbers (unless in the footer)
- Animations – between slides or within – use sparingly
- Grouping objects
- Abbreviations/acronyms unless they are universally known
- Objects/inserts – audio video

Accessibility issues for Spreadsheets

All of the same issues for word processor and presentation documents also apply to spreadsheet documents. The following are other considerations:

- Each sheet needs a unique name.
- Don't use objects (charts, images, graphics).
- Tables specify column header information. The header checkbox is selected for each block of cells marked as a table (Excel).
- Avoid blank rows or columns

Accessibility issues for Portable Document Format (PDF)

- PDFs have been around since 1993.
- The Portable Document Format was designed to ensure the formatting was the same in all OS, screens and printers.
- Contrary to popular lore, PDFs can be made very accessible. In fact, some PDF are preferred over word processor documents or web pages.

How to make an accessible PDF

- Start with an accessible word processor document.
- Convert with "Save as PDF"
- Use Adobe Acrobat Professional to test the document. There is an accessibility checker in this program as well. It will provide an assessment and directions for how to fix issues.
- You (currently) CANNOT create Accessible PDFs using a Mac or Google Docs.
- Read/View:
 - WCAG- Accessible PDF w3.org/TR/2014/NOTE-WCAG20-TECHS-20140408/pdf.html
 - Section 508 Best Practice Library – highly recommended. section508.gov/content/learn/best-practice-library
 - Section 508 Best Practice Webinar – Archives – highly recommended adaconferences.org/CIOC/Archives/
 - Accessible PDFs – WebAIM - webaim.org/techniques/acrobat/

Final Thoughts

- Avoid multiple conversions, particularly between OS or differing programs. Every time you do this there is some detritus that gets into the mix.
- HTML is often the most accessible of all formats, think about using it.
- If something is designed for print (e.g., Desk Top Publishing -DTP documents created by Adobe inDesign or MS Publisher), it will often require a fair amount of work to make it accessible. MS Publisher cannot make accessible documents.
- Practice your skills to improve! A good strategy might be to identify someone in the school staff who has skills in this area.

Part II Image, Videos and Animations

Who is affected?

- Primarily those with visual disabilities.
- But access features may benefit others:
 - People with Learning Disabilities/Dyslexia
 - People with Cognitive Impairments (e.g, Acquired Brain Injury, Development Disabilities).
 - People with Intellectual Disabilities.

Images

- Any graphic element
 - Pretty pictures – decorations
 - Essential elements
 - Maps.
 - Graphs.
 - Instructional content (e.g., works of art, blueprints).
 - Flow charts and representations.

Maps, Charts and Graphs

- Problematic: These visual features can often be problematic for students with low vision or blindness.
- For students who are Braille users: it is best to use Tactile Graphics (digital and paper). See resources below.
- Large Print users (students with visual impairments who need large print): make sure the quality of the original is good and is still usable when “zoomed.”
- May need to customize your digital documents based upon user’s needs.

Accessible Images

- Alternative Description
- What is a good ALT Tag?

Techniques and Tools

- If the image contains text – ALT must be exactly the same.
- Describe the image in the text of the document and refer to the image.
 - Mathew Brady took many images of soldiers on the battlefields of the Civil War as illustrated. The three soldiers in Figure 1 are new recruits soon to be joining in the battle. They came without uniforms and bearing their own firearms...

Videos and Animations

- Video – content created with a “recording” device such as a camera (video or film).
- Animation – created by an artist/cartoonist. Primarily “drawn” or fabricated and recorded. Designed to convey movement.

Video/Audio

- All video needs to be closed captioned if it contains human speech.
- All audio only content can be transcribed.
- Live transcription/captioning can usually be accomplished using CART (Communication Access Realtime Translation).

Open vs. Closed

- Open Captioning – embedded in media
 - No control by user.
 - May have issues with visibility.
- Closed Captioning – separate file/feed
 - Allows full control by user.
 - Preferred method.

Closed Captioning

- **Synchronized** – the text content appears at approximately the same time.
- **Equivalent** – captions equivalent to the spoken word.
- **Available** – readily available to those who need it.

Captioning Resources

Captioning Video on Maine CITE - mainecite.org/captioning-video/

Description

Video description (audio description) is audio-narrated descriptions of a television program's key visual elements. These descriptions are inserted into natural pauses in the program's dialogue. Video description makes media more accessible.

- Is required for television, but slow to be developed. Larger markets.
- Challenging to accomplish – may be highly subjective.
- May only be needed in few situations.
- Might be accomplished with separate textual description.
- Stay tuned...

Animation

Use the same rules for Video/Audio Description (if needed).

Some animations are “demonstrations” – make be able to integrate the verbal description into the animation.

Final, Final Thoughts

Practice, practice, practice.

Get a guru on your team!

Develop a work flow to ensure public-facing documents are vetted.

Supplemental Information

Accessible Word Processor Documents

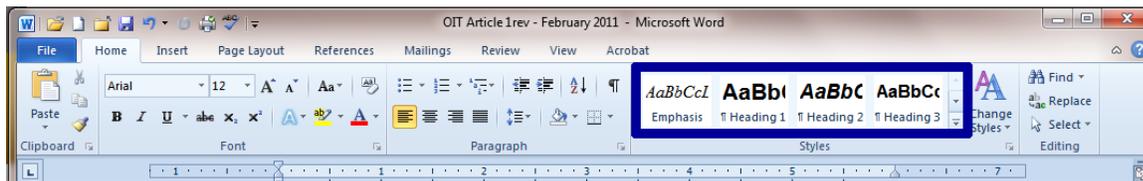
For most word processed documents, the accessibility guidelines are rather simple and easy to accomplish. There are four principal areas of concern: **Heading/Styles**, **Images**, **Tables** and general **Presentational (HIT-P)** issues.

Headings and Styles

Styles and Headings are one of the most overlooked tools found in the modern word processor. All word processor applications contain this tool but few people get into the habit of using them.

Using styles and headings can make your documents easier to navigate by persons using a screen reader. The reason is that most screen reading technologies allow the user to navigate or “scan” through the document by jumping or skipping from heading to heading. In much the same way a person without visual impairments may quickly scan down the length of a document to determine its content and intent, the screen reader user, by skipping from heading to heading can accomplish the same.

The Style and Heading feature in most word processors are usually prominently displayed in the tool bar. In MS-Word, they are located in “the Ribbon” at the top of the screen (see image – Style section of Ribbon highlighted in bold blue box). As in most word processors, MS-Word also gives you a choice of styles to use (click on the “Change Styles” button to the right of the display).



More important than the way the style looks, is the order of Headings. MS-Office styles often provide a style called “Title.” This can be used when creating the title of your document, but the preferred method – from an accessibility perspective – is to choose “Heading 1.” The first subheading would be Heading 2 and you can continue Heading 3, Heading 4, etc. as you move down the document as necessary. What is important to remember, to the person reading your document with a screen reader, the hierarchical order of the heading will be important from a semantic perspective. If you jump around from Heading 1 to Heading 4 and then back to Heading 2, the user scanning the document may not understand your content.

Images

Images embedded in digital documents present the biggest challenge to persons using an assistive technology (AT) device called a screen reader. These devices, typically used by people who are blind or have vision impairments, convert written text into spoken words, often referred to as text-to-speech (Tts). In a related AT, content is sent to a device called a refreshable Braille display which converts the written content into Braille.

When a document contains an image in the document the screen reader alerts the reader that there is an image. However, the screen reader cannot communicate anything else about the image unless the author has added an “alternative description.” This description, sometimes referred to as the “ALT

description” based upon the HTML attribute ALT, provides the screen reader with more information about the image. While images in documents are decorative - what I like to call “pretty pictures,” occasionally there are images inserted in documents that include graphic text or information that is essential to the understanding of the document. Whenever an image is placed in a word processor document, to meet accessibility guidelines, you must add an alternative description.

It should be noted that when a word processed document is converted into another format such as a PDF file or HTML document, the alternate description will often be converted along with the image. However, this is not always the case – this will be discussed in other articles in this series.

For our purposes here, the “*alternate description*” should be kept as simple as possible; the exception is when the image is a chart or graph. In this case, it makes sense to generally provide the description of the chart/graph in the body of the document and then refer to the chart/graph as a “figure” (i.e., Figure 1, Figure A, etc.). Since charts and graphs are by their nature visual amenities, they may be of little use to many users with complete blindness. For users with visual impairment, it makes sense to provide the chart/graph in a size that can be readily viewed perhaps providing this on its own page or as a separate attachment.

Tables

The use of tables in documents is a common practice and for the display of data and certain information, tables are a vital component. The chief concern about tabled information is order in which the content will be read by the screen reader. Care must be taken to ensure that when the content is read by a screen reader, it is communicated in a way that makes sense.

Screen readers read the information on the screen in the standard left-to-right and top-to-bottom fashion and thus will read the content cell by cell until it reaches the end of the table. The default setting for most tables is that the top row of information provides a descriptive “heading” for the information contained in the column below. By default, tables created in MS-Word will automatically convert content in the top row to be the heading. Care must therefore also be taken that the information is lined up in the correct column.

While tabled information will always present challenges to persons using screen readers, they can be particularly problematic if the data within is presented in an order that is illogical or confusing. Once again, care must be taken to review the tabled data to determine it makes sense to a person using a screen reader.

Tables in word processor documents should only be used to present data and not used for layout purposes. If your document requires special layout *for print version* (e.g., information with sidebars and text boxes) you should use a different application (i.e., desktop publishing software like Adobe InDesign or MS Publisher) to prepare these documents. **Note that these “print versions” will not be accessible to for some people with disabilities.**

General Presentational Issues

Last but not least, the preparation of word processed documents should take into consideration the needs of people who have low vision. These individuals may have one of a variety of disabilities which can make viewing information on a computer screen or on paper difficult.

First, **font size and style** should be taken into consideration if your document is going to be printed for the general public. Generally speaking, font sizes below a 12-point are more difficult to read; thus, smaller font size should be avoided. If you can reasonably go up to a 14-point font, by all means do so. For documents that are going to be shared digitally, the font size is less important as long as the font sizes on the document can be enlarged.

The use of **background images** in either electronic or print documents should always be avoided. Equally you should take care to ensure that your documents provide **sufficient contrast** between the text and the background.

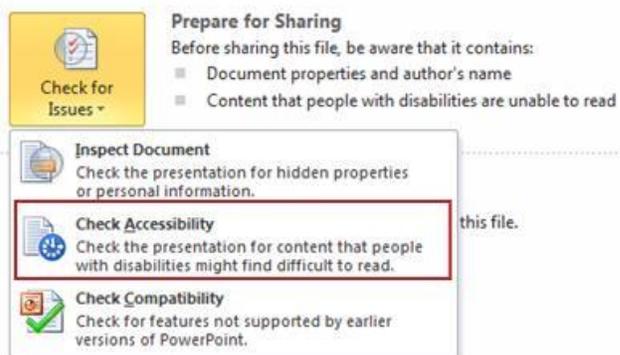
The use of **color text** can often be problematic for persons with color blindness and should be avoided. These colorful features have become somewhat popular in some e-mail applications (often referred to as “stationery”). It’s generally a good idea to refrain from using these features altogether.

From a usability perspective, it is a good idea to view your document in monochrome by printing it out on a black and white printer. If you have used colored features in your document (e.g., colored charts and graphs) these may be distorted and illegible when printed in black and white.

When inserting Links (URLs) into word processed documents it is best to embed the URL/hypertext link in a group of words, sentence or statement that details where the URL will lead the user. Never use the terms “click here” as this is meaningless to the user. Screen reader AT will identify the content as a link and then read the content. Avoid using <http://> or “www” as these are not necessary.

Descriptive File Names – it is always a good idea to create a filename that provides some description of the content. Example: bad – “filenamewoofoo.docx”; good – “Accessible-Digital-Docs-2015.docx”

MS Office Accessibility Checker



In all *Windows versions* of their popular office suite since MS-Office 2010, Microsoft has made accessibility a priority with the inclusion of a new feature called the Accessibility Checker (MSO-AC). Built into three of the core applications: Word, Excel, and PowerPoint, the MSO-AC helps users create more accessible content “by identifying areas that might be challenging for users with disabilities to view or use, and providing a task pane to review those areas, users can fix potential problems with their content.” Here is a quick review of how it works.

1. To use MSO-AC, click on the File tab [or Alt-F], tab to, or click on **Inspect Document** and then tab to or click on to Check Accessibility. The MSO-AC dialog panel will appear along the right side of your screen and show you “Warnings, Errors or Inspection Results.” The MSO-AC works dynamically (see number 3

below) and will continue to run as you create or edit your document. To find the location of the error in your document, click or tab to the Warning statement and your screen will refresh showing the error location highlighted.

In the lower panel of the MSO-AC, there is Additional Information which explains the reason for the Warning/Error and step-by-step instructions on how to fix it.

In developing this tool, Microsoft apparently differentiated between accessibility issues that are minor and those considered critical. For example, including extra characters (Warning: Repeated Blank Characters) is considered minor – issuing a “Warning,” whereas the absence of ALT text for an inserted image is considered critical – issuing an “Error”

2. When creating new documents using the default version settings (not documents saved in pre-2007 versions of MSO), the MSO-AC seems to run smoothly as advertised. Documents created in older versions of Office, or saved in the pre-2007 format, may or may not work as expected. For example, testing some 2003 version Excel spreadsheets yielded an error statement: “Unable to run the Accessibility Checker – Cannot check the current file type for accessibility issues.” Attempts at saving the file in the current version had no effect on this. However, if the data is copied and pasted into a new Excel spreadsheet, the MSO-AC worked fine.

When using Word and PowerPoint, the MSO-AC worked essentially the same way (error when trying to check documents made by older versions), but sometimes simply saving the document in the new version allowed MSO-AC to work.

3. One of the best features of the MSO-AC is that once activated in the application it will run dynamically and continue to alert you to accessibility issues via the Accessibility Checker task pane (see image on this page) as you continue to create or edit your document. In other words, in PowerPoint, as you add features to a slide such as an image or chart, the MSO-AC immediately notes that the new object is lacking an ALT text description and provides directions and rationale on how to fix the accessibility error. And if you accidentally – or purposely – remove an accessibility feature, MSO-AC will note this and provide a description of the issue, how to fix it and why it needs to be fixed. This dynamic feature allows the author to add the accessibility on the fly, as the document is being created. This feature alone has the potential of making the process of adding accessibility features faster and easier. The feature should be

very helpful in enterprise settings, ultimately reducing the cost of training and accessibility auditing.



4. When adding ALT description text in MS-Office, the procedure has been finally (thankfully) standardized across all applications. Right clicking with your mouse (Note: there are a series steps to accomplish this task using keystroke alternatives) brings up the Format Picture dialog box. Choose the "ALT Text" option at the bottom of the list and add the alternative text. Unfortunately, Microsoft has chosen to add an input box for adding a "Title" and/or a "Description" to this option. Even though the MSO-AC will "approve" an inserted image that has only a Title and not a Description, if you convert this document into another format (PDF or HTML) the Title will not pass as a valid description for accessibility purposes. In other words, for conversion purposes, the Description is more important than the Title. At this point, it is recommended that users add BOTH a Title and Description to their inserted image and make the content of the Title and Description the same.

Accessible Presentational Documents

Digital presentational documents have become very popular in live and asynchronous events as a colorful means of supporting the speakers' comments and providing a graphical backdrop. The most popular application in this class of office applications, **Microsoft PowerPoint** has become perhaps the most widely used and despite the fact that there are several products that can be used, its name has become the generic term for presentational applications. For this article we will concentrate on PowerPoint as it affords the most flexibility in terms of accessibility. However, the accessibility and usability issues articulated here extend to the use of any these applications. We will provide some incite at the end of the article about some of the other presentation applications on the market.

Use and Usability – DON'T Distribute PowerPoint files

In its intended format – a presentation where one or a small group of individuals are presenting to a larger group, the presenters' "slides" are projected onto a large screen or monitor. In this context, the content provided on the slides would obviously not be accessible to persons with limited vision or blindness. In many of these situations, the presenters may provide the participants with a paper copy of the "slides" as a handout. But again, in this modality, the information presented will be by and large inaccessible to persons with visual impairments and blindness.

To meet accessibility needs, presentational documents are commonly provided to participants in a digital format that can be viewed either in real time or before and after the live presentation. But contrary to popular belief and convention, PowerPoint files are not designed for this purpose. If the presentation requires the sharing of data or information in written form, before, after or during the presentation, it is best to provide the participants with a "handout" - a word processor document or possibly even a spreadsheet file – with the content in a context that makes sense independent of the presentation. In almost all cases, it is the presenter's oral commentary that is the most important in the presentation. Thus when archiving and sharing this presentation, it would be best to provide a recording (video and audio) of the entire live presentation, complete with captions (or transcript if appropriate), along with this written handout to make it fully usable and accessible.

Accessibility

If it is necessary to share a PowerPoint publically, the following accessibility guidelines are provided which will allow a person using a screen reader to view the content. As noted above, this is not the recommended method and users should be encouraged to use the ancillary materials associated with the presentation to achieve a fuller understanding of the materials.

Images and Objects

Since images and objects often make up a large part of most PowerPoint presentations, care must be taken to ensure that adequate alternative descriptions are used for all of these elements in the presentation. In most cases the images in these presentations are what we might call "pretty pictures," simple decorations to "dress up" a presentation and make it visually interesting. In well-designed, creative presentation documents these images may also serve as powerful "icons" communicating thoughts and ideas without words.

However, due to some limitations in the software, all of these images need to be given the alternate (ALT) description. Those familiar with HTML code know about the Alternate attribute in the image tag,

the so called ALT Attribute, and the use of the “null” or “empty” ALT attribute when dealing with non-essential images (this is discussed in more detail in other articles in this series). Note that unlike coding HTML, there is no “null” version of the alternative description in these presentation applications. Therefore, care must be taken to provide a brief and succinct description when including images in PowerPoint or any digital document.

Objects are any graphic or embedded element in a PowerPoint presentation file. Shapes, “SmartArt” charts, lines, arrows and audiovisual elements such as video or audio clips must all be given an alternative description.

Maps, Charts and Graphs

Maps, charts and graphs present a unique challenge to those creating accessible documents of any type. As these features are generally considered to be “visual aids,” they may present problems for people with visual disabilities who rely on screen readers and other assistive technology. Currently, the only effective method for making maps, charts and graphs accessible is with the use of Tactile Graphics. Briefly, this process creates images that are intended to be touched rather than viewed. Used in combination with Braille, the tactile graphics map, which the user can also touch with their fingers, allows people with visual impairments to feel the map design and read the legend using Braille characters. The process to design and develop these materials can take time and expense.

As a general rule, information shared in maps chart or graph form should always be done to supplement and support the content provided in written form. In other words, charts and graphs should not be provided independently of the written report or document and care needs to be taken to explain fully, in written form, that information which is contained in the graphic. When maps, charts or tables of information are used in a presentation, the presenter usually provides this contextual information and uses the graphic element to make their point. To be fully accessible, this contextual information must always accompany the graphic elements when they are shared publicly.

When charts, tables and graphs are presented in presentational documents, the graphic should also be made accessible using the description above for inserting ALT text for images.

There are a number of additional elements unique to PowerPoint documents that also need to be addressed to ensure accessibility:

Slide Titles – Each slide needs to have a distinct title. This is generally derived from the heading on each slide. If you have multiple slides on the same topic, you should label them numerically to make them distinct. Example “Slide Title – 1”, “Slide Title – 2”, etc. If you are using a sequence of two slides, you may use “Slide Title” and “Slide Title – continued”

Other things to avoid:

- embedded tables (may not read well in screen readers).
- multiple columns (may mess up word/reading order).
- complex charts (very hard to include ALT description that will provide enough information to make it meaningful).
- complex graphic created with symbols or free form shapes (each piece/shape used requires an ALT description - in the final form it won't make sense to screen reader users).
- use of URLs or e-mail addresses.

The use of presentational documents independent of a presentation can often be confusing. The MS PowerPoint application allows for the addition of notes in text form (viewable in the edit mode but not in display mode) or recorded as an aural Narration to the document. While this latter method may seem to be the most natural and easy to accomplish, it presents an accessibility challenge to users with hearing disabilities.

Accessible Spreadsheets

Spreadsheets are commonly used in office environments to organize large amounts of tabled data. The chief feature of the spreadsheet is its capacity to perform various calculation functions on the data and to sort and distribute the data in a variety of ways. Modern spreadsheets also have the capacity to convert tabled data into graphic representations (charts and graphs) that can also be extracted and moved to other types of office documents.

The accessibility of spreadsheets is a complex issue and depends on a number of factors. As spreadsheets are essentially tools, you first must decide if the document is intended for use as a “working document” – one that is being shared between and among a group of users with the intention of editing and redrafting – or one designed as a final product that intended for sharing without the option of changing the data. In the first case this might mean an office intranet setting where the document is shared among a group of co-workers. In the second case, the document is a final report prepared for distribution to the public.

In the “working document” situation, there would be an expectation that the users have access to the spreadsheet application to view and manipulate the data and are fluent with how the application is used. Within this context there may be some inherent accessibility issues depending upon the layout of the data set. Care should be taken to label the various columns and rows to assist all users in identifying the data. Perhaps the biggest problem for users accessing the spreadsheet with a screen reader is “orphaned” data – that is data located off in some remote area of the spreadsheet.

When spreadsheets are to be used to create documents in a final form for public use, it is most often converted into another format (e.g., placed as a table in a word processor document, or converted to Adobe Acrobat PDF or HTML form). In these cases, care must be taken to ensure that the columns and rows are labeled clearly and understandably and “tagged” appropriately (we’ll discuss tagging for PDF and HTML documents in a later article). It should be noted that converting spreadsheet data into alternate forms usually requires an extensive amount of time and testing. Occasionally, tabled information can be very complex and despite the required tagging, may still prove to be very confusing to all users but particularly for people using screen readers and other assistive technology. It should be remembered that tables are intended to support what is written in the document and should not be presented separately from the main document. That said, authors of documents containing large data sets should take care to ensure their descriptive text is understandable to the largest possible audience.

Accessibility Issues

- Start with the first cell and make sure all cells are filled with content. No empty rows or columns.
- Screen readers will read the cell number as users navigate from cell to cell

- Spanned cells will be identified by a screen reader (e.g., “Budget A1 through G1”). If content spans multiple cells visually, these cells should be merged. To merge cells, select Home and the Merge menu.
- DO NOT use graphs or images in spreadsheets.
- Check your spelling – no spell checker in Excel.

See more information on [GOALS Project’s Creating Accessible Spreadsheets in Microsoft Excel 2010/13](#) (Windows) & 2011 (Mac) ncdae.org/resources/cheatsheets/excel.php

Resources

Your one stop shop from Maine CITE mainecite.org/accessible-digital-documents/

WCAG- Accessible PDF w3.org/TR/2014/NOTE-WCAG20-TECHS-20140408/pdf.html

Section 508 Best Practice Library – highly recommended. section508.gov/content/learn/best-practice-library

Section 508 Best Practice Webinar – Archives – highly recommended
adaconferences.org/CIOC/Archives/

GOALS Project – Cheatsheets – great resource to use the employees or students -
ncdae.org/resources/cheatsheets/

Accessibility of Office Documents and Office Applications - adod.idrc.ocad.ca/

Microsoft –

Creating Accessible Word documents - support.office.com/en-us/article/Creating-accessible-Word-documents-d9bf3683-87ac-47ea-b91a-78dcacb3c66d

Check for accessibility with MS-AC - support.office.com/en-us/article/Check-for-accessibility-issues-a16f6de0-2f39-4a2b-8bd8-5ad801426c7f

Colour Contrast Analyser (CCA) - paciellogroup.com/resources/contrastanalyser/

WebAIM Resources

MS Word - webaim.org/techniques/word/

Accessible PDFs – webaim.org/techniques/acrobat/

Google Accessibility – Products - google.com/accessibility/all-products-features.html

Accessibility for Libre Office

AccessODF – checker for Writer - accessodf.sourceforge.net/

General discussion about accessibility - libreoffice.org/get-help/accessibility/

Adobe – Training resources for accessibility - adobe.com/accessibility/products/acrobat/training.html