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Information technology — User interface component accessibility —

Part 11: Guidance on text alternatives for images

Technologies de l'information — Accessibilité du composant interface utilisateur —

Partie 11: Lignes directrices pour les textes alternatifs pour images

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Foreword

ISO (the International Organization for Standardization) and IEC (the International Electrotechnical Commission) form the specialized system for worldwide standardization. National bodies that are members of ISO or IEC participate in the development of International Standards through technical committees established by the respective organization to deal with particular fields of technical activity. ISO and IEC technical committees collaborate in fields of mutual interest. Other international organizations, governmental and non-governmental, in liaison with ISO and IEC, also take part in the work.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of document should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO and IEC shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents) or the IEC list of patent declarations received (see http://patents.iec.ch).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see www.iso.org/iso/foreword.html.

This document was prepared by Joint Technical Committee ISO/IEC JTC 1, *Information technology*, Subcommittee SC 35, *User interfaces*.

This first edition of ISO/IEC 20071-11 as an International Standard cancels and replaces the Technical Specification (ISO/IEC TS 20071-11:2012), which has been technically revised.

The main changes compared to the Technical Specification are as follows:

— a major restructuring and simplification of the requirements;

— the addition of image type specific information in annexes.

A list of all parts in the ISO/IEC 20071 series can be found on the ISO website.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Introduction

The saying that "A picture is worth a thousand words" recognizes that images can present a wealth of information. It is important that alternative textual descriptions or representations present a comprehensive account of the purpose and content of images to people unable to see or interpret them.

Text alternatives help people who cannot see the images to understand what the image is of or the purpose it serves by providing the same information in textual form. Text alternatives can be useful to those with visual impairments, those who turned images off in order to improve webpage loading speeds, and those who cannot understand the image being displayed. They can also aid search engines in finding images. This document provides guidance for user interface, web and document developers to help them create informative descriptions for various types of illustrations.

While some sources of guidance advocate that text alternatives be kept short, it is important that they provide an equitable alternative to the image. ISO/IEC Guide 71 states "A system provides equitable use if it allows diverse users to accomplish tasks in an identical manner whenever possible or in an equivalent manner when an identical manner is not possible". This document provides guidance intended to help developers create equitable text alternatives.

The guidance contained in this document is intended to be used by the person who creates content and/or text alternatives to be placed in an electronic document. There is no expectation that this person will have any additional expertise beyond understanding the contents of the document and why an image was chosen to be placed within the document.

While the main intent of the guidance within this document is the creation of text alternatives, the information identified in this guidance could be placed in the main document text, reducing the length of the resulting text alternatives. However, placing information in the main document text does not fully replace the function of having some text alternatives for each image.

Information technology — User interface component accessibility —

Part 11: Guidance on text alternatives for images

1 Scope

This document gives guidance on how to create text alternatives and what information to put in text alternatives.

This document applies to all static images that are used in any type of electronic document. It also applies to individual images within a slide show.

This document does not apply to moving images (e.g. movies).

NOTE 1 While text alternatives can be implemented via various mechanisms in various types of electronic documents, the contents of this document are not dependent on the choice of implementation mechanism or of electronic document type.

NOTE 2 Guidance on making moving images accessible is contained in ISO/IEC TS 20071-21, ISO/IEC 20071-23 and ISO/IEC 20071-25.

2 Normative references

There are no normative references in this document.

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at http://www.electropedia.org/

3.1 Text alternatives and related definitions

3.1.1
text alternative
alternative text
textual description or representation of an image

Note 1 to entry: By storing this description or representation in text format, it is able to be rendered in any available modality.

Note 2 to entry: The main audience of text alternatives are the users of screen reading features.

Note 3 to entry: Text alternatives are often provided to screen reader users in the form of primary and secondary alternative texts of an image.

Note 4 to entry: Generally, "text alternative" is used to refer to any text alternative, while "alternative text" is used to refer to text alternatives for images that are contained in attributes of an image.

3.1.2
primary alternative text
main text alternative provided to users of screen readers

Note 1 to entry: Different technologies and platforms provide various mechanisms for containing and presenting primary alternative text.

EXAMPLE 1 In HTML 5.2 and EPUB, primary alternative text is provided in the “alt” attribute of the img tag.

EXAMPLE 2 In PDF, primary alternative text is provided through the /Alt entry in a structure element’s dictionary.

3.1.3
secondary alternative text
additional text alternative provided to users of screen readers beyond primary alternative text

Note 1 to entry: Different technologies and platforms provide various mechanisms for containing and presenting secondary alternative text.

EXAMPLE 1 In HTML5.2, secondary alternative text is provided in the “longdesc” attribute of the img tag.

EXAMPLE 2 In EPUB, secondary alternative text is provided through the “role” attribute.

3.1.4
main body of text
textual content of a document that is always presented to the users

3.2 Image and related definitions

3.2.1
image
<digital> graphical content intended to be presented visually

Note 1 to entry: This includes graphics that are encoded in any electronic format, including, but not limited to, formats that are comprised of individual pixels (e.g. those produced by paint programs or by photographic means) and formats that comprised of formulas (e.g. those produced as scalable vector drawings).

3.2.2
static image
image where the set of image components and their relationships to one another do not change over time

Note 1 to entry: This includes images where the content/representation of individual image components can change over time, e.g. indicators where the value they are indicating changes in real time.

Note 2 to entry: The concept of static image is used for all images that are not slide shows or moving images.

Note 3 to entry: This use of static image is similar to the ISO/IEC 13249-5 use of "still image". However, it differs in that a static image can have moving components. ISO/IEC 13249-5 states "A still image user-defined type is generic to image handling. It addresses the need to store, manage, and retrieve information based on aspects of inherent image characteristics such as height, width, and format and based on image features such as average color, color histogram, positional color, and texture. It also addresses the need to employ manipulation such as rotation, scaling as well as similarity assessment".

3.2.3
slide show
set of images that replace one another periodically

Note 1 to entry: The replacement of one static image by another static image can be controlled automatically by the system (in which case the timing for each image is usually predetermined) or manually by the user (where the timing for each image is determined on a case by case basis).

Note 2 to entry: Slide shows are usually composed of static images but can include short movies. The interval between static images in a slide show are considered longer than in a movie, such that the motion being portrayed by the slide show would appear staggered instead of smooth like in a movie.

3.2.4
moving image
image where the contents are dynamically changing

Note 1 to entry: This includes realistic moving images (often referred to as movies), abstract moving images (often referred to as cartoons), and even non-representational moving images (often referred to as light shows).

3.2.5
component
<image> identifiable part of an image that provides content for the user

Note 1 to entry: Types of image component include (but not limited to) shapes, objects, persons, areas, and text.

Note 2 to entry: Text components can include natural and/or formal languages (such as mathematical equations).

3.3 Image types and related definitions

3.3.1
drawing
<image> image created as an original work through the artistic actions of a human

3.3.2
photograph
<image> electronic copy of an image of something that has its own independent existence in the real world

3.3.3
diagram
<image> image containing a graphical representation of a set of (physical, logical, conceptual or other) objects or components and their (physical, logical, sequential or other) relationships

3.3.4
map
<image> image containing a geospatial representation of geographic data

3.3.5
computer-generated illustration
<image> image created by a computer based on data that it has available to it

3.3.6
composite image
<image> image created by combining individual images or components of individual images, which can each be accessed as independent components of the composite image

3.4 Image content and related definitions

3.4.1
content
interactive or non-interactive object containing information represented by text, image, video, sound or other media

[SOURCE: ISO/IEC/IEEE 23026:2015, 4.6]

3.4.2
realistic
<type of content> content perceived by the user to faithfully represent data, information, objects, relationships and/or concepts in the natural world

EXAMPLE Photographic images, pictures intended to be true-to-life, diagrams used to illustrate how to assemble a set of parts.

3.4.3
sketch
<type of content> rapidly executed freehand drawing that is not usually intended as a finished fully-realistic work

Note 1 to entry: Sketches are often monochrome line drawings, with or without shading.

3.4.4
caricature
<type of content> content showing the features of its subject in a simplified or exaggerated way

3.4.5
cartoon
<type of content> semi-realistic content that is usually intended to be entertaining

Note 1 to entry: It is typical for cartoons to include unrealistic situations, e.g. animals talking, people performing physical actions that are not possible.

3.4.6
abstract
<type of content> content intended to present important major data, information, object, relationship, and/or conceptual components, without faithfully representing them as they occur in the natural world

EXAMPLE Cartoons, abstract art (where the basis for abstraction can be recognized), graphs and charts.

3.4.7
non-representational
<type of content> content intended for decorative purposes without the intent to represent any particular natural world data, information, objects, relationships and/or concepts

EXAMPLE Art presenting colors and textures (without any recognizable objective contents).

Note 1 to entry: Diagrams, maps and computer-generated illustrations are often presented as composite images.

3.5 Information relationship definitions

3.5.1
relationship type
information about an association between entities

3.5.2
logical
<relationship> information about what entities are interacting and how they interact

3.5.3
temporal
<relationship> information about when some action or entity occurs

3.5.4
physical
spatial
<relationship> information about where one entity is in relation to another entity

3.6 Information type definitions

3.6.1
physical
<information> information about phenomena which have a concrete existence

EXAMPLE Objects, agents or scenes that have a physical existence.

Note 1 to entry: This can include states and histories of objects.

3.6.2
value
<information> quantitative information describing properties of an object

3.6.3
quantitative
<information> statistical information or numerical data and the relationships between the numbers

Note 1 to entry: Quantitative information is often presented in a graphical manner.

Note 2 to entry: Quantitative images are often used for comparison between related sets of data, such as comparing net profit over a period of time.

Note 3 to entry: Examples of quantitative images include charts and graphs.

3.6.4
control
<information> information that can be used to take some action which manipulates data, other objects or their attributes

3.6.5
event
<information> information about a state change, message indicating the occurrence of an action, or conveying a significant change in the world

3.6.6
state
<information> properties of the environment, objects or agents that remain constant during a period of time

3.7 Importance and related definitions

3.7.1
importance
<information> level of need for users to know information about content

[SOURCE: ISO/IEC 20071-23, 3.11]

3.7.2
essential information
information that is necessary to understand the content and/or its function

[SOURCE: ISO/IEC 20071-23, 3.12]

3.7.3
significant information
information that is needed for a more detailed understanding of the content and/or its function to most users most of the time

[SOURCE: ISO/IEC 20071-23, 3.13]

3.7.4
helpful information
information that provides a thorough understanding of the content to some users

[SOURCE: ISO/IEC 20071-23, 3.14]

3.7.5
unhelpful information
information that does not help users understand the content and/or can interfere with that understanding

[SOURCE: ISO/IEC 20071-23, 3.15]

4 Text alternatives for images

4.1 Uses of text alternatives

Images are often used to convey a large amount of information, whether it is a diagram for constructing a desk or a photo of what happened at a birthday party. In one glance, a person can retrieve a large amount of information and have a general understanding about the remaining content in the document in which the image resides.

NOTE 1 While text alternatives are primarily developed for electronic documents (including computer applications, apps, and websites); they can also be helpful in printed documents that can be read out to a user.

Images are sometimes used to supplement or complement the document content or can be another representation of the same content. However, sometimes the image stands alone or adds information that is not part of the other document content. Any information that is present in the image but not the other document content does not get conveyed to those who are unable to see the image. Text alternatives are needed to convey that information.

There are many reasons why a person can need text alternatives, including (but not limited to):

a) the person has a visual impairment;

b) the person is using a program that aurally reads the document content while doing something else (e.g. the person is listening while driving or cooking);

c) the device being used to view the image is unable to properly display the image or the image is difficult to see (such as on a small mobile device);

d) the person turned off images on their web browser to increase loading speed;

e) the person cannot understand and/or interpret the image; and

f) the text alternative can be used by search engines to find an image.

Tools (such as screen readers) exist that can read aloud text that appears in a document to those who cannot or are not looking at the screen. If an image can be described and represented textually, then the tools can also read the text alternatives aloud.

NOTE 2 The term "text alternative" is used to represent the text equivalent of an image, regardless of where that text resides. The term "alternative text" is generally used to represent a text alternative that is technically provided as an attribute of an image.

Text alternatives can include a description of what the image looks like and/or an interpretation of what the image represents or its function. Different text alternatives can be developed for the same image, differing in length and (as a result) information. Technology often allows for a primary alternative text as well as a secondary alternative text to be attached as attributes of an image. Providing both primary alternative text and secondary alternative text can give the user a choice in the amount of detail they wish to receive about an image.

Images can mean different things to different viewers. However, images are added to a document for particular purposes with the intent of meaning certain things to all viewers. In order to write informative text alternatives for an image, it is important to first know the information intended to be represented in the image. It is difficult to share knowledge about an image with others if the alternative

text developer does not have knowledge of what the image is intended to convey to the reader. Therefore, it is important to gather or identify as much information as possible about an image.

It is preferable for the developer of the electronic document to also be the developer of text alternatives for images included in the document.

NOTE 3 While various experts can analyse an image to a greater extent (e.g. for cataloguing purposes in a library of images), it important that people involved in this procedure understand the information content that the image is intended to convey within the document in which it occurs.

This document presents a method for identifying information about an image and then structuring text alternatives for the image.

4.2 Presenting text alternatives

4.2.1 General

There are three possible locations for presenting text alternatives for an image:

a) within the main body of text;

b) within the primary alternative text attribute of an image;

c) within the secondary alternative text attribute of an image or within secondary alternative text that is linked in some manner to the image.

NOTE Subclause 10.4 provides guidance on the use of these three locations for presenting text alternatives.

4.2.2 Text alternatives within the main body of text

The information contained in well-written text alternatives can often help users who can see an image to understand or interpret the image as it was intended by the document developer. In situations where the information contained in a text alternative is considered beneficial to all (or most) users of a document, this information can be presented in the main body of text, either as part of the main text or in a special addition to the main text that is identified as acting as a text alternative to the image, rather than as alternative text attribute of the image that requires special efforts to access.

Where text alternatives are included within the main body of text, they are not limited in length and can take one or more paragraphs to provide detailed descriptions of the image and detailed discussions of its intended purpose.

4.2.3 Primary alternative text

Primary alternative text is the usual location for text alternatives for images in most documents. The primary alternative text is usually displayed (in a hidden manner) to tools such as screen readers. Some tools present the primary alternative text automatically by default, while the user needs to request the secondary alternative text.

Where alternative text is considered beneficial for all readers it can be placed (with a suitable notation identifying it as alternative text) in the main body of text, as long as the primary alternative text is used to refer to the location of it in the main body of text (see subclause 10.4.6).

Some types of electronic documents have a limitation or restriction on the length of the primary alternative text.

NOTE Some screen readers will sub-divide alternative text entries that are larger than 125 characters.

In order to limit the size of the primary alternative text, it is often viewed as an overview of the image content, what the image is about, or the function of the image.

Short primary alternative texts (due to character length limitations) may not be sufficient to convey the full amount of information provided by the image. Where primary alternative texts are limited in length, secondary alternative text becomes an important means of communicating the complete meaning/content of an image.

4.2.4 Secondary alternative text

Where it is available, secondary alternative text generally does not have limits on its length and therefore can contain a larger amount of information about the image. It can consist of details about the image that could not be part of the primary alternative text.

Since there is no limit on the amount of information, it can include information that some users might not need. The importance of each piece of information about an image can help to determine if the information is presented in the primary alternative text, secondary alternative text, both primary and secondary alternative texts, or not at all (see Clause 10 for a discussion of levels of importance).

5 Procedure for creating text alternatives

The creation of suitable text alternatives (regardless of where they are located) shall be based on a thorough understanding of the image, its components, its purpose and context in the document where it is contained.

This can be done by applying the following procedure:

a) Identify the type of image (Clause 6)

   Identify the type (and if applicable the sub-type) of image.

b) Identify the purpose of the image (Clause 7)

   Identify and describe the purpose of each image. This step influences which image components and which pieces of information are important for the user to know.

   This involves answering the question "Why?"

c) Identify the image components (Clause 8)

   Depending on the purpose of the image, identify the image components. This step is necessary to properly identify pieces of information about the image that can be important to the user.

   This can be done in a two-stage process:

   1) Identify the image as a whole;

   2) Identify the image components of the image.

      NOTE 1 Identifying image components is an iterative process. Individual image components can be further separated into a number of (lower level) image components until all components that are important to describe have been identified.

d) Identify the information (content) presented by the image (Clause 9)

   Depending on the purpose of the image, identify the content about an image and its components.

   This involves answering the question "What?"

   NOTE 2 “Who” is a specific instance of “What” that involves recognizable people.

   NOTE 3 While identified content is complex, it can become useful to separate that image (or image component) into several (lower level) image components, in order to better be able to identify simpler content components.

e) Evaluate the importance of the information about the image (Clause 10)

Considering the purpose of the image, evaluate the importance of the identified information about the image to focus on the most important information to present in the text alternative(s).

NOTE 4 Importance is based on the need of users to know information about the image and is related to the purpose of the image (or image component) and context in which the image is presented. Different information becomes important depending on the purpose of the image and the environment or context of the image.

NOTE 5 This can help to eliminate less important information and to identify if the information already obtained is sufficiently important to satisfy the purpose.

f) Compose the text alternatives (Clause 11)

Organize the important information to improve its readability and allocate to the primary or secondary alternative texts of an image and/or to the main text.

NOTE 6 Organization involves both structuring and writing text alternatives.

g) Evaluate the text alternative (Clause 12)

Evaluate potential text alternatives (by someone other than the person who created it) to check that it suitably describes the image within the context of the document within which it is contained.

NOTE 7 While it is ideal for this to involve actual user testing, it is important that this step not be omitted due to lack of available users or other resources.

NOTE 8 Evaluation by a colleague or friend is better than no external evaluation at all.

6 Identifying the types of image

6.1 General

Identifying the type of an image provides a quick impression regarding the purpose and possible contents of the image. People looking at an image use this information to give them a "first impression" of what to look for when looking at the image.

NOTE While there are many additional types and sub-types that could be identified, beyond those in this clause, it is important not to make the identification of types too complex for the users to understand. More detailed types and sub-types are primarily important to those users who will recognize the distinction that the type or sub-type conveys.

6.2 Drawings

A drawing is an image created as an original work through the artistic actions of a human. Because it is an artistic creation, even the most realistic of drawings will be influenced by the style and intent of the human creating them.

NOTE Drawings can be realistic, abstract/non-representational and can contain realistic, abstract/non-representational components.

Drawings can be divided into various sub-types, including:

a) Realistic drawings, where the content of the image is perceived by the user to faithfully represent data, information, objects, relationships, and/or concepts in the natural world;

b) Sketches, where the content was a rapidly executed freehand drawing and is not usually intended as a finished, fully-realistic work;

c) Caricatures, where the content shows the features of its subject in a simplified or exaggerated way;

d) Abstract drawings, where content of the image is intended to present important major data, information, object, relationship, and/or conceptual components, without representing them as they occur in the natural world;

e) Non-representational drawings, where the content of the image is intended for decorative purposes without the intent to represent any particular natural world data, information, objects, relationships, and/or concepts.

6.3 Photographs

A photograph is an electronic copy of an image of something that has its own independent existence in the real world. As such, photographs are expected to be realistic representations of the real world.

NOTE This is not to say that the real world could not be manipulated for purposes of "staging" a photograph to show a particular scene.

While the photograph is a true rendering of the object(s) that it illustrates, those objects can themselves be realistic, abstract, or even non-representational.

While most photographs do not need to be further distinguished by sub-typing, it is important to recognize that a photograph, which has been modified from the real-world scene that it was an image of, is a modified photograph (rather than just considering it as a photograph).

6.4 Diagrams

A diagram is an image containing a graphical representation of a set of (physical, logical, conceptual or other) objects or components and their (physical, logical, sequential or other) relationships.

There are a wide variety of sub-types of diagrams, and often many variations on many of these sub-types. Some sub-types of diagrams include: activity diagrams, assembly diagrams, block diagrams, class diagrams, component diagrams, concept diagrams, entity-relationship diagrams, flow diagrams, graphs, interaction diagrams, logic diagrams, object diagrams, state transition diagrams, structure diagrams and use case diagrams.

When choosing the name of a sub-type to use in alternative text, it is important that the chosen name be meaningful to the intended users.

It is generally more important to describe the intended information content (semantics) of a diagram than the physical characteristics (syntax) of the diagram.

6.5 Maps

A map is an image containing a geospatial representation of geographic data.

NOTE 1 While a map could be considered as a sub-type of a diagram, the concept and use of a map is so well established that it is useful to consider maps as a separate type of image.

Maps can be presented in two or three dimensions and can contain information on two or three dimensions.

While there are many characteristics that could be used to distinguish between (to sub-type) maps, the most important characteristic to use in identifying a map is to identify the physical area that is the subject of the map.

NOTE 2 Other characteristics often belong as part of the purpose of the map.

In addition to representing physical areas, some interactive "maps" are used to present users with a choice of different options, contained in various adjacent physical areas.

6.6 Computer-generated illustrations

A computer-generated illustration is an image created by a computer based on data that it has available to it. Because it is created based on data, the permanence of the image is not guaranteed. Changes to the data could result in a different image being created at a future point in time.

NOTE Drawings created by humans utilizing computerized tools (including computer renditions of drawings) are not considered computer-generated illustrations.

Computers can generate a wide range of images, including diagrams, maps, and images that appear similar to drawings or photographs.

6.7 Composite images

A composite image is an image created by combining individual images or components of individual images.

Composite images can be created by humans or by computers, based on a variety of individual images that could each be created by a human or by a computer.

The main distinction in composite images is whether or not the individual component images can be separately addressed, and thus have their own separate text alternatives.

a) If the components cannot be separately addressed, then the image behaves as a single image, with a type of composite image and (if needed) multiple sub-types identifying the type (and, if applicable, sub-type) of each of the components.

b) If the components can be separately addressed, then the important issue is whether or not the complete composite image also has its own text alternative. If it does not, then information about the membership of the individual component images in the composite image can be important in the text alternatives of each of the components.

6.8 Identifying image type in text alternatives

6.8.1 Identifying the image type of single images

The type (and, if applicable, sub-type(s)) of the image should be identified by a word or a short phrase at the start of the text alternative.

NOTE 1 This is typically done in combination with the statement of the purpose of the image (see subclause 7.6).

NOTE 2 The type of image is not typically important for images that are used to label other information (see subclause B.1.4).

6.8.2 Identifying image type of composite images with separately addressable components

a) If a composite image has separate text alternatives for the entire image and for component images, then the type (and, if applicable, sub-type) of the composite image and each of the separately addressable component images should be identified by a word or a short phrase at the start of the appropriate text alternatives.

b) If a composite image only has text alternatives for each of its component images and it is not possible to add a text alternative for the composite image as a whole:

   1) An initial invisible component image should be added to the set of component images, as the first image in the set, so that it can be a source for an alternative text for the entire composite image;

   2) The type (and, if applicable, sub-type(s)) of each component image (including the component image representing the entire composite image) should be identified by a word or a short phrase at the start of the appropriate text alternatives.

7 Identifying the purpose of the image

7.1 Introduction to purposes

A purpose identifies "why" an image is being presented as part of a document. It often identifies the function that the image serves within the document.

NOTE 1 Text alternatives are context dependent and thus are different from information used for cataloguing of images within an image library.

Along with information on the type of image, information on the purpose of the image is important in letting a person know whether or not to read the entire text alternative.

The image was chosen to be in the document for one or more reasons (purposes). It is important that the intent of the document developer had for choosing the image is achieved by the text alternative.

NOTE 2 The context in which the image is used can help to understand the purpose of an image, especially when this is explained in the main text reference to the image.

The purpose and context of the image will also affect the understanding of the document. An image can have an effect on the understanding of the document content in two manners:

1) Objective information can influence intellectual or knowledge-based understanding. Objective information is factual and/or logical.

   EXAMPLE 1 In a bar chart, the statistical data and axis information are objective information.

2) Subjective information can influence affective or emotional-based understanding. Subjective information consists of emotions, concepts, opinions, and judgments that are not necessarily universally shared.

   EXAMPLE 2 Different cultural interpretations of symbolisms in a painting are subjective information.

Purposes can be classified in terms of:

— informative purposes;

— control purposes;

— decorative purposes;

— formatting purposes.

NOTE 3 While it is important to identify the purpose or purposes of an image, it is usually not productive to try and identify the purposes of individual components of an image. Information on the components of an image belongs in the main content of the text alternative (see Clause 9).

7.2 Informative purposes

Most images are intended to provide information to the user that supplements, and/or provides an example of content that is also presented textually, usually within the same document.

NOTE While an image can seem to duplicate information presented in the main text, it is important to consider what additional information it can be providing, including alternative approaches to understanding the information.

Images used primarily for informative purposes generally contain some information that is important for the user to receive, beyond the purpose for which the image was presented.

7.3 Control purposes

Images are often used as the basis for developing controls.

NOTE Images can be used with/as controls such as buttons, sliders, knobs, icons and links.

EXAMPLE 1 An image is used as the target for a hyperlink.

EXAMPLE 2 Various areas on a map are used as the boundaries for links that take the user to detailed information relating to that area.

The ability to associate text alternatives with these images depends on how they are implemented. In cases where the images are separately addressable from the controls, it is both possible and useful to provide suitable text alternatives.

7.4 Decorative purposes

7.4.1 Decorative images that convey affective information

Decorative images are often ignored by creators of text alternatives. However, this can result in failure to provide screen reader users with important information.

The use of images for decorative purposes can be intended to add visual appeal to a document. This visual appeal can be important in attracting and retaining the attention of users to a document.

"Decorative" images are often used to present emotional and subjective information and thus are also presented for informative purposes [see subclause 7.2]. If text alternatives are not used for such images, screen reader users are deprived of getting the same information that is provided visually.

EXAMPLE Where a decorative image is intended to convey humour, not providing a suitable text alternative will fail to convey the intended result. While the intended meaning can be subtle, it is not meaningless.

7.4.2 Decorative images with minimal information value

The information present in some decorative images is of minimal importance.

Providing text alternatives for such images can create unnecessary work for users of text alternatives.

If a decorative image does not present information with some level of importance (see subclause 10.2.5), then the text alternative for that image should be empty.

NOTE 1 Empty alternative text can be used as a means to deliberately provide no textual image description where text alternatives are not needed or appropriate,

Some situations of where text alternatives may not be needed or appropriate include:

a) an image that is used only to fill space that otherwise would be empty;

NOTE 2 Background images composed of colors/textures are often used for the sole role of making webpages appear attractive, without adding any particular meaning to the webpage.

b) an image that is excessively used where redundant complete text alternatives for each usage would provide a hindrance to the user.

NOTE 3 A corporate logo is used instead of standard bullets to precede items in a list. The items in the list can also be recognized as items in the list from their formatting, and thus knowledge of the existence of the bullets (or images used to replace standard bullets) does not provide any additional information on formatting. Furthermore, repeatedly providing the same text alternatives for each of these bullets could become annoying to screen reader users.

NOTE 4 This is different from the single use of a logo on each page of a document or system where it is important to at least acknowledge that the image is the corporate logo.

NOTE 5 It is best to analyse all images according to the procedure in Clause 10 and to allow the importance level of descriptive information to determine whether or not text alternatives are needed.

7.5 Formatting purposes

Formatting organizes, separates, and/or highlights some information to distinguish it from other information.

Mark-up languages, such as HTML and SGML, provide explicit means for formatting text entries. If they are properly used, the addition of images, such as horizontal line separators, only provides additional redundant formatting.

NOTE 1 Empty alternative text can be used as a means to deliberately provide no textual image description for images that are only used for formatting purposes.

NOTE 2 While developers often fail to provide text alternatives for images used for formatting, the use of such images instead of or in addition to standard formatting methods often is also done for decorating the document [see subclause 6.2.4].

NOTE 3 Even if an image used for formatting has multiple image components, these components are not significant or useful in describing the purpose of the image for formatting.

NOTE 4 The existence of components used for formatting within an image can appear to have some importance. However, this can be described focusing on the relationship between the components, without needing to describe the means of formatting used, unless they also fulfil some other purpose in the image.

7.6 Identifying purpose in text alternatives

7.6.1 Describing the purpose

While the purpose of the image can be considered in terms of four general classifications (informative, control, decorative, formatting), the text alternative should (implicitly or explicitly) identify the specific purpose of the image instead of just naming a general classification of purpose.

EXAMPLE Rather than just staying that the image is "informative", the first sentence of the primary alternative text for an image is “Figure 3 is a flowchart that illustrates the process for (name of the process).”

7.6.2 Stating the purpose briefly

It is important that statements of purpose help the reader to quickly decide whether or not to read the rest of the text alternative.

Where statements of purpose are included in a text alternative, they should be briefly stated in the first sentence of the text alternative.

NOTE 1 Further details about the purpose (within a text alternative) are provided by identifying the content and identifying qualifications and relationships to the content.

NOTE 2 Where the purpose of an image of a person is to put a human face to the discussion, the purpose in the text alternative can be simplified to stating that image is a photo or drawing of (name of the person).

EXAMPLE The text alternative for an image without a caption starts with the sentence, "This (image) is a photo of Albert Einstein."

7.6.3 Avoiding redundancy with captions

Some images are accompanied with a caption that provides a brief statement of its purpose. In such cases, repeating the statement of purpose (and especially repeating the caption) in text alternatives is not helpful.

a) If a caption is associated with an image, and it provides a suitable statement of the purpose of the image, text alternative should not restate the purpose.

NOTE 1 Within HTML 5.2 it is possible to use the caption as part of the text alternative.

b) If a caption is not associated with an image, either a caption should be added to the document containing the image or the text alternative for the image should identify the purpose at the start of the text alternative.

NOTE 2 This statement of purpose could be worded in a manner that would make a suitable caption for the image.

7.6.4 Considering the context of use

Where appropriate, a brief reference to the context of use of the image may be included as part of the identification of the purpose of an image.

7.6.5 Considering both objective and subjective purposes

It is important that statements of purpose recognize both objective and subjective purposes.

If the purpose of the image includes presenting subjective/emotional/motivational information, then this aspect of the purpose should be described in text alternative.

7.6.6 Text alternatives for images used for formatting purposes

It is not necessary to provide text alternatives to describe the use of images solely for formatting purposes, provided that the formatting information is otherwise provided to the user textually or through markup.

a) Simple, non-decorative graphic elements (e.g. blanks or lines) to separate or format other content should not be implemented as images so that they will not have text alternatives.

NOTE Blanks, lines, and other simple graphic elements can be implemented using text.

b) Where text alternatives are provided to describe images that are used solely for formatting purposes, the text alternative should be described as simply as possible, merely identifying the purpose of the image, without the need for identifying the type of image or describing the contents of the image.

EXAMPLE 1 Text alternatives for a border between two sections of a form states, "Separation between personal information and product information".

c) Where decorative images are used for formatting, a text alternative should be provided to describe the image, similar to text alternatives for other decorative images,

EXAMPLE 2 Fancy borders are used instead of spaces to visually highlight the separation of different chunks of content on a webpage. While these borders do not provide any significant content, the distinction between the different chunks of content is primarily provided by the proper use of headings. However, these fancy borders have a second purpose in that they are also used for decorating the webpage.

7.6.7 Further information for images used for informative purposes

Where an image is presented for informative or control purposes, it is important to provide additional information in the text alternative beyond just identifying the type of image and its purpose(s).

Where an image is presented for informative purposes, the text alternative shall also include an identification of the important components and information presented by the image.

7.6.8 Further information for images used for control purposes

Where an image is used in conjunction with control purposes, the text alternatives shall provide information about its relationship to its associated control(s).

8 Identifying the image components

8.1 Images and image components

The complexity and structure of an image will determine the complexity and structure of appropriate text alternatives. Many images present some levels of complexity that can affect the experience that a viewer of the image is intended to have. Ignoring this complexity can often result in text alternatives that are not a full alternative to the image.

Many images can be broken down into image components where a number of image components can present additional important information to the user. Most image components represent real or logical objects.

EXAMPLE Each person, object, shape, text, landmark, or step in a process can be considered an image component.

Where the background or border of an image is important, they can be considered as additional image components.

Whether or not a component is identified and elaborated upon depends on how important information about the component is with respect to the purpose and context of the image.

8.2 Text components

It is not appropriate to use an image to present only text that could be otherwise presented as a text element within the document within which it is contained.

EXAMPLE 1 Where stylized text is desired, it is preferable to accomplish this stylization using (fancy) fonts rather than by using an image of stylized text.

However, there are many instances of images that contain textual components.

EXAMPLE 2 Where showing a page from a particular book is involved, it is often more appropriate to use an image of the page than to recreate the page using formatted text.

8.3 Uniquely identifying image components

Where multiple components are involved, it is important that each component is uniquely identified so that it is meaningful to the reader of the text alternative. This can help to identify information unique to the component and to identify relationships with other components.

The type of an image component is often very important in understanding its role within an image.

In many cases, an image component can be uniquely identified by referring to it using a generic type of object as its name.

EXAMPLE 1 Some examples of components identified using a generic type include: a man, a baseball player, a car, a building, a table, a tower.

NOTE 1 Generic types of components generally involve only general everyday knowledge available to a user. They do not deal with specific branding or specific naming of an object within the image.

In some cases, it is possible to uniquely identify an image component with a specific name that provides further meaning to the image component.

EXAMPLE 2 Some examples of image components identified using a specific name include: Alan Touring, Babe Ruth, the Batmobile.

In some cases, a specific identifier is created by adding a specific name to a generic type. These qualifications are usually made because of their being readily identifiable.

EXAMPLE 3 Some examples of image components identified with a qualified type include: King Arthur's round table, the Eiffel tower.

Where multiple image components are of a common type, it is important to uniquely identify each image component in a manner that distinguishes them from other instances of similar objects while recognizing their similarities. This can be accomplished using both a specific name and a generic type.

EXAMPLE 4 An entity relationship diagram contains image components including: a museum entity, an artistic work entity, an exhibition entity, and various named relationships.

In addition to graphical objects appearing in an image (or image component), textual objects sometimes also appear. Where the text is readable, it can be considered to be specific content that is to be identified in the primary alternative text of an image.

EXAMPLE 5 A picture of a highway includes a road sign that indicates that Saskatoon is 30 km further down the highway.

Identifying an image component typically does not interpret the meaning of these objects beyond identifying them, unless these components are intentionally being used symbolically.

8.4 Structuring information about images and their components

To gather as much information as possible, it is important for an image first to be considered as a whole entity before then considering components of the image. Some information can be present only when the image is viewed as a whole.

NOTE In an image with multiple components, the components can be considered individually or as a set of components.

Because an image can have a vast amount of information, some images can be further analysed by identifying several parts (called image components) and then identifying information about each part (or image component). Breaking down the image into several parts allows for focus on the details of those particular parts, resulting in more information about the image. An image component could be broken down further into additional image components, if needed.

[This paragraph contains *a long version of* alternative text for Figure 1 *suitable for inclusion in main text*] Figure 1 provides a structure diagram of information that can be used to describe an image. In it, there is information about the whole image and also information about various image components. This structure recognizes that different images can have different numbers of image components. There are also relationships between each of the image components and the whole image, which imply that information about the whole image is more important than information about the image components. Information for whole image includes: the image's type, the image's purpose, and information on the content of the whole image. Information about each image component includes: an identifier of the component and information about the content.

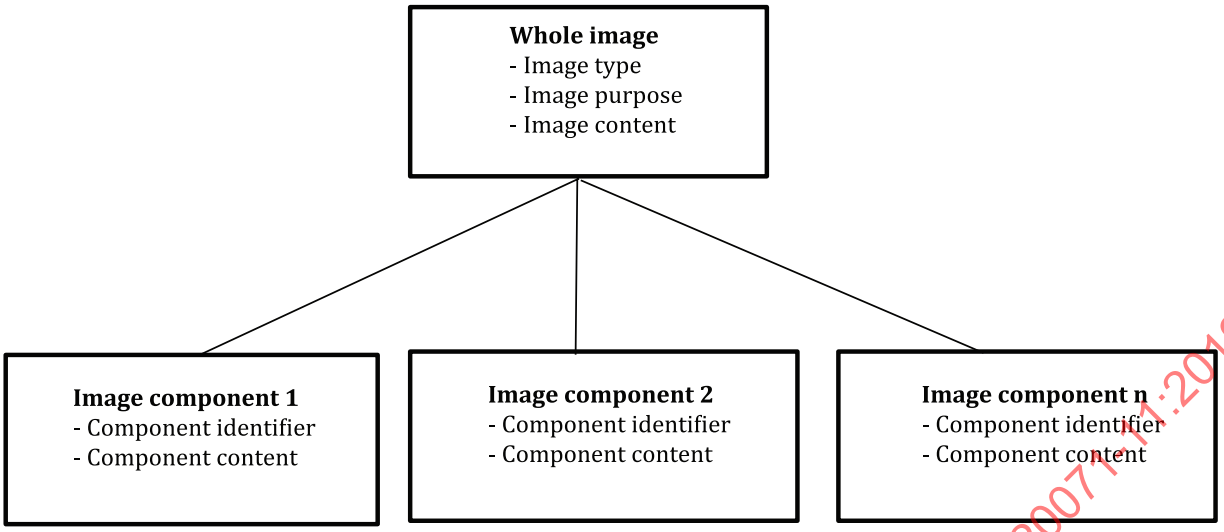

Figure 1 — Structure of image information

A much shorter version of the text alternative for Figure 1 (to meet character length limitations of text alternatives stored as an attribute of the image and designed for screen reader access) could be:

Figure 1 provides a structure diagram for a whole image (WI) and its image components (IC). Information about WI includes: a type, the purpose, and information about the content. Information about each of the ICs includes: an identifier and information about the content.

This is a structure for use in identifying information and not for wording the resulting text alternatives. It is recognized that some of the same information can appear multiple times. The intent of this structure is to identify as much information about an image as possible. Redundancies can be resolved in the organizing and writing of the text alternatives (see Clause 11).

EXAMPLE A piece of information identified at the whole image level could be identified again at the image component level or it could be identified as part of multiple image components. It is not necessary for the information to be unique.

NOTE 2 While it is important to identify all of this information, size constraints and the importance of the information will then be used to decide which elements of information are included in the actual text alternatives.

8.5 Dealing with image complexity

8.5.1 Use of image components

Components of images should be identified and analysed, whenever this helps to identify important information.

8.5.2 Textual information in images

The treatment of text within an image depends on whether or not a typical reader viewing the image would be able to read the text.

a) Each separate instance of text, which is in the language of the main body of text, within an image should be considered as a separate component of the image, so that its importance is considered in its treatment within the alternative text of the image.

b) Text that is blurred or in a different language from the language of the main body of text should be treated as information about the image component in which it occurs.

NOTE It is sufficient for the text alternative to acknowledge that there is blurred text or that there is text that appears in a foreign language. If knowledge of the foreign language is relevant to understanding the image, the name of the foreign language can be specified.

8.5.3 Information about whole images

Information to be gathered in the development of text alternatives for whole images should include:

a) the image type;

b) the image purpose;

c) information about the content of the whole image;

d) information about the image components.

8.5.4 Information about image components

Information to be gathered in the development of text alternatives for image components should include:

a) a unique identifier for the image component;

b) information about the content of the image component.

9 Identifying the information (content) presented by the image

9.1 Content of an image or its components

The content of an image includes all the pieces of information about the image that satisfies the purpose of including the image in the document.

There are four main types of content:

a) Subjective content – provides information about how to interpret the rest of the content (see subclause 9.2).

b) Objective content – provides factual information regarding what is obvious in the image (see subclause 9.3).

c) Relationship content – provides information on how the image or image component relates to the document and/or other components (see subclause 9.4).

d) Interaction content – provides information on any interactions associated with an image component (see subclause 9.5).

The identification of this content is intended to provide the main information out of which text alternatives can be constructed. It focuses on "what" and "who" is in the image and "what" this should mean to the reader.

Where applicable to the type or intended purpose of the image, this information can be elaborated on in various manners.

9.2 Subjective content

Subjective content describes the (affective) meaning of the image (or image component). Identifying subjective content involves interpreting the intended meaning of the image. Subjective content can

include concepts, theories, symbolic meanings, intended emotions, opinions, judgments, and other explanations that go beyond factually identifying individual components and obvious relationships.

NOTE 1 A description of the subjective content of an image is different from a statement of purpose of an image. The subjective content identifies the meaning of the image or image component while a purpose identifies why the image was presented (see Clause 7).

The following questions can be considered in analysing the subjective information presented by images (or image components):

a) What concepts are associated with the image or the image component?

b) What is the image or image component representing or symbolizing?

c) If the colour(s) of the image or image component is symbolic, what is the colour(s) representing?

d) What themes are represented?

e) What emotions are being expressed?

f) How is the user expected to respond emotionally (with feelings, judgments and opinions) to the image?

g) What other subjective information is important for users to know?

NOTE 2 These questions are best answered by the person who placed the image in the electronic document. If that person is not available to answer these questions, creating the text alternative will involve making informed personal judgements to answer these questions.

9.3 Objective content

Objective content presents (cognitive) facts that describe the image (or image component).

It is usually preferable to identify images (or image components) as specifically as possible when analysing an image. Decisions will later be made regarding the importance of including this information in text alternatives (see Clause 10) and how to organize the information (see Clause 11).

The following questions can be considered in analysing the objective information presented by images (or image components):

a) "What are the characteristics of the image (or image component)?"

   1) Is there textual content that needs to be known?

   2) Are there characteristics of physical objects that need to be known?

   3) Is there information about a person in the image that needs to be known?

   4) Are there perceptual properties of objects or persons that need to be known?

   5) Are there artistic characteristics that need to be known?

   6) Are there quantities that need to be known?

b) "Where is the setting of the image?"

   NOTE 1 See also subclause 9.4.5 for further considerations relating to physical (spatial) relationships of images and image components.

c) "When does the image take place/represent?"

   1) Does the time period need to be known?

   2) Are states involved or changing that need to be known?

NOTE 2 See also subclause 9.4.4 for further considerations relating to temporal relationships of images and image components.

Depending on the image, its purpose and context, further elaboration of these questions can be important.

NOTE 3 Annex A discusses possible elaborations to some of these questions in detail. Annex B discusses further considerations related to particular types of images.

9.4 Relationship content

9.4.1 Relationships

In addition to identifying images (and their components), it is important to identify relationships between images (and their components), both with each other and with the document in which they are displayed.

For images with multiple image components, the relationships between those components can be essential to the understanding of the image. Relationships are especially important for diagram type images.

Relationships are more complex and more diverse than merely answering "What relationships occur?" The relationships that are important to be considered and described are those that provide an understanding that support the purpose of the image. It is important to consider the various types of relationships that can be illustrated in an image.

Relationships can be categorized into:

a) actions;

b) logical relationships;

c) temporal relationships;

d) physical (spatial) relationships.

9.4.2 Actions

Actions identify what is happening in an image with respect to one or more image components.

NOTE Actions include instantaneous events and longer-term activities.

EXAMPLE 1 A person is running.

EXAMPLE 2 A child is throwing a ball.

EXAMPLE 3 A car is driving down the road towards the city.

Actions can be described in general or specific terms.

Generic actions involve only general everyday knowledge available to a user.

EXAMPLE 4 Some examples of generic actions include: skipping, cutting, chopping.

A generic action can be qualified in a manner that elaborates on it or that distinguishes it from other instances of similar actions.

EXAMPLE 5 The action of jumping can be qualified as: jumping over hurdles at 8.5 m/s.

EXAMPLE 6 The car drove around the puddle, rather than through it.

The following questions can be considered in analysing the relationships presented by images (or image components):

a) What interaction or action is taking place in the image?

b) What or who is performing the action in the image?

c) What or who is the object of the action in the image?

d) How is the action being performed in the image?

e) What is the expected result of the action in the image?

f) What other information about the action in the image is important for users to know?

9.4.3 Logical relationships

Logical relationships explain how some element(s) (e.g. an image or image component) interact(s) with some other element(s).

EXAMPLE 1 Entity relationship diagrams and class diagrams illustrate different logical relationships between various (entity or class) components.

Logical relationships are often referred to by more specific terms that name the type of relationship.

NOTE Some specific types of logical relationships include: associations, flows, parts, instances, responsibility and/or authority.

EXAMPLE 2 The student has a book.

EXAMPLE 3 Exhibitions are held at a museum.

EXAMPLE 4 Part A (the seat) is connected to the bicycle at location F.

EXAMPLE 5 The customer order includes the name of the customer and the items being ordered.

While it is usual that both the subject and the object will be a part of the image being described, it is possible that either the subject or the object will only be implied. Where the image makes such an implication, it is important that the text alternatives make the user aware of this being implied.

EXAMPLE 6 The sailor is scanning the horizon. It is implied that he is looking for land. This relationship could be stated as, "The sailor is scanning the horizon looking for land" if the implication is valid (as opposed to looking for other ships or the weather). Otherwise it would be more suitable to state the relationship without mentioning an object, just as, "The sailor is scanning the horizon."

9.4.4 Temporal relationships

Temporal relationships explain when some action occurs or the time in which an entity occurs.

NOTE 1 This is a different use of time from just identifying when the image takes place (see subclause 9.3).

NOTE 2 Temporal relationships can be found in many images including images containing: assembly lines (in a factory), assembly diagrams, flow diagrams, and state transition diagrams.

This can include when apparent (or intended) changes to an image (or image component) occurs. It can include providing information on the sequencing of events.

EXAMPLE Flow diagrams and state transition diagrams illustrate one or more possible temporal sequences and their possible consequences.

Sequential relationships can be:

— linear (where one element leads to a single other element);

— branching/hierarchical (where one element leads to multiple other elements);

— cyclical/networked (any element in a set of elements eventually leads to all elements in the set, including itself);

— sets of one or more of the above.

Individual sequential relationships can be:

— one directional;

— bi-directional.

The following questions can be considered in in analysing the sequential relationships presented by images (or image components):

a) What is the basis (or purpose) of the sequential relationship?

b) What types of sequential relationships are involved (linear, branching, cyclical, one directional, bi-directional)?

c) If there is a start and/or end point(s) to the set of relationships, what are the start and/or end point(s)?

d) What are the individual steps (components) of the relationship?

e) What is a suitable basis (or method) for logically ordering the individual steps (components)?

f) How is each step (component) related temporally to the other steps (components)? This can include:

   1) connections to previous and following steps (components);

   2) time involved in individual steps (components) or for the transition between steps (components);

   3) logic (decision or event) involved in moving from one step (component) to another.

g) What other information about the sequential relationship is important for users to know?

9.4.5 Physical (spatial) relationships

Physical (spatial) relationships explain where an image (or image component) is located in relation to other physically occurring elements in the image or in the document in which the image is positioned.

NOTE 1 This is different from the setting pictured in the image (see subclause 9.3).

NOTE 2 While physical positioning can be easily identified, it is important to recognize which physical realtionships are important and which can be ignored.

EXAMPLE 1 A photograph shows a physical layout of objects. However, it is important to determine which physical relationships are important to understanding the intended meaning of the photograph.

EXAMPLE 2 Assembly diagrams and component diagrams illustrate the intended physical relationships between components. Where an image of the side or back of a computer is intended to show the possible inputs and outputs to the computer, knowing the relative locations between a headphone output port and a microphone input port can be important to help users to properly insert the correct cables.

EXAMPLE 3 Maps focus on the spatial relationships between the components that they illustrate.

The following questions can be considered in in analysing the physical (spatial) relationships presented by images (or image components):

a) Where is the image (or image component) spatially located within the document (or image)?

NOTE 3 This can be answered in terms of the coordinates of the image (or image component). There are various ways in which coordinates can be expressed based on, such as:

1) The coordinates of the top left corner of the image component relative to some other component or to the entire image.

2) The coordinates of the centre of the image component relative to some other component or to the entire image.

3) The coordinates of the top, bottom, left, and right of the image component relative to some other component or to the entire image.

b) Where (in general) is the image (or image component) located with regards to the object (e.g. document, image, image component) that contains it? (For example, upper left, lower right.)

c) Where is the image (or image component) relative to other entities (surrounding content, or internal components)?

NOTE 4 Relative positioning can be used to express various spatial relationships including: above, below, to the right of, to the left of, in front of, behind, touches, crosses, overlaps, contains, within.

9.5 Interaction content

It is important to explain what types of actions can be performed on images or their components. Many images and image components are only intended to provide information to the user, without allowing the user to manipulate or otherwise interact with them.

Where interactions with an image or image component are possible, it is important that these interactions be identified both to avoid unintentional activations of these actions and to be able to intentionally activate desired actions.

The following questions can be considered in analysing the intended use of images (or image components):

a) How is the user supposed to interact with the image (or image component)?

b) What action is the user supposed to perform in order to interact with the image (or image component)?

c) What is intended to result from interacting with or performing an action on the image (or image component)?

d) What can go wrong in the interaction with the image (or image component)?

9.6 Analysing the information presented by an image

a) Depending on the type and purpose of the image, further information about the main content of the image and its components should be analysed. This includes:

1) Subjective content;

2) Objective content;

3) Relationship content;

4) Intended use content.

b) Where an elaboration of some main content appears to be useful, this elaboration may be done, prior to evaluating the importance of the content.

10 Evaluating the importance of the information about the image

10.1 Importance is context dependent

The context in which the image is used helps to determine the importance of pieces of information about the image. The same image can be used for different reasons or purposes. Depending on the purpose and context, different pieces of information become important or unimportant. Therefore, different text alternatives (including in the main text and in primary and secondary alternative texts) can be created for a single image.

NOTE 1 The importance of a piece of information can change when the purpose and/or context of the image changes.

NOTE 2 In situations where the image presents unique information, this information adds to what is presented in the main body of text. Additional objective, subjective, and relationship information presented in an image is important to the understanding of the document.

NOTE 3 In situations where the image complements (restates, modifies, elaborates, supplements) the main body of text, the image can also contain information that is not provided in the main body of text. Complimentary objective and subjective information can be important to the understanding of the document. A full understanding of the image can provide a better understanding of the document.

NOTE 4 In situations where the image adds visual appeal, the image creates or modifies the mood of the document, the information can be focused on the subjective rather than the objective understanding of the document. While images used for visual appeal can have little or no objective information, the subjective information they present can be important to a full understanding of the document.

10.2 Importance

10.2.1 Levels of importance

There are four levels of importance (essential, significant, helpful, and not important).

10.2.2 Essential information

Essential information is necessary to understand the image within the document in which it appears.

Essential information needs to be presented either in the main body of text (when referring to the image) or in the primary alternative text.

NOTE 1 By placing essential information in the main body of text (when appropriate) it ensures that all users (not just users with screen readers) will have access to this information.

Essential information can have some or all of the following properties:

— It is aimed at the target audience.

— It needs to be known in order to comprehend the document.

— Most people want/need it most of the time.

— The user would be confused as to what the document is talking about without this information.

— Without it, the user has no idea why the image is there or what the image is for.

— It provides a good first impression of the image.

— Based on this information, the user will determine if they need/want to know more about it.

— For the content provider, this is the information that the content provider absolutely wants to tell people about.

— It provides the essence, purpose, function, or intent of the image.

— It identifies that the image conflicts with the main body of text and that this conflict is intentional.

NOTE 2 As more of these properties apply, it is more likely that the information is essential.

NOTE 3 Both the image type and image purpose are usually essential information. Other information can also be essential, especially when it fulfills more than one of the above properties.

10.2.3 Significant information

Significant information provides a comprehensive understanding of the image within the document in which it appears, when such information is desired by the user (based on the user's understanding of the essential information). Significant information satisfies the detailed interests of most users most of the time.

Significant information needs to be presented either in the primary alternative text or in secondary alternative text.

NOTE 1 The placement of significant information depends on the amount of essential information that is already contained in primary alternative text.

a) Where all the essential information has been placed in the main body of text, then significant information can usually be placed in the primary alternative text.

b) Where a large amount of essential information has been placed in the primary alternative text, then significant information can be better placed in the secondary alternative text to avoid overloading the primary alternative text.

Significant information can have some or all of the following properties:

— It is aimed at the target audience.

— It gives a more detailed and thorough understanding of the image and/or document.

— It is information that could be obtained from viewing the image by more than a quick glance.

— The user needs to know about it while reading the document, in order to understand the document.

— The user can decide to know more based on the essential information. This information goes into more details about the essential information.

— Without this information, the user has an idea of what the image is about and the reason the image is there but does not have a detailed understanding about it.

— This is information that further explains and gives more details on what the content provider wants to tell the users.

NOTE 2 As more of these properties apply, it is more likely that the information is significant.

10.2.4 Helpful information

Helpful information provides more detailed information about the image for those users who wish to further explore or understand the image, beyond its intended role within the document.

Because helpful information is only of interest to some of the users some of the time, it is not appropriate to be placed in the primary alternative text.

Helpful information may be placed in secondary alternative text or in a separate document that is linked from either the main body of text or the primary alternative text.

Helpful information can have some or all of the following properties:

— It provides specific details that can be of interest to some who are the target audience of the document.

— It is targeted towards very specific audiences (other than the target audience) or a subset of the target audience.

— It provides the user with a better understanding of the image when the user is not an expert in the topic area or not the target audience of the document.

— It reassures users that they have not missed something of greater importance.

— Without this information, the users have a fairly complete understanding of what the document is about but can have some things that they still want to know.

— It includes different or other possible interpretations of the information being expressed by the image.

— The content provider uses this information to clarify some things for some people.

— It includes optional extra information that is seldom wanted or needed but elaborates on what is already there.

NOTE As more of these properties apply, it is more likely that the information is helpful.

10.2.5 Not important information

Information is not important if it does not help to provide much additional understanding of the image. This can include information that is not appropriate to consider given the context of the image within the document.

Information which is not important is inappropriate to be presented to users either in the main body of text or in text alternatives.

Information that is not important can have some or all of the following properties:

— Very few to no users will want to know or care to know this information.

— It is rarely helpful.

— It is not important enough to mention.

— Without this information, the user knows everything they want or need to know in order to understand the document and/or image.

— This is information that can result in unintended confusion and does not help users understand what the content provider is saying.

NOTE As more of these properties apply, it is more likely that the information is not important.

10.3 Textual content in images

Receiving information about text in images is generally important to understanding the content of the image. The manner of making text available will depend on its importance level and the amount of text involved.

a) Large amounts of text can be too large to fit in the primary alternative text and can be better placed either in the main body of text (if essential or significant) or in secondary alternative text.

b) Short amounts of text can be placed either in the primary alternative text of an image or, if they are of lesser importance, within the secondary alternative text of an image.

c) Portions of text, where some of the text is obscured, can be placed according to their importance.

10.4 Using importance to allocate information to text alternatives

10.4.1 Including subjective information in text alternatives

a) Where the meaning of an image (or image component) is essential, this meaning shall be included within the main body of text or the primary alternative text of an image.

b) Where the meaning of an image (or image component) is significant, this meaning should be included within the main body of text or the alternative text of an image.

c) Where the meaning of an image (or image component) is helpful, this meaning may be included within the secondary alternative text of an image.

10.4.2 Including objective information in text alternatives

a) When it is essential to identify an image (or image component) in terms of objective content, this identification shall be included within the main body of text or the primary alternative text of an image.

b) When it is significant to identify an image (or image component) in terms of objective content, this identification should be included within the main body of text or the alternative text of an image.

c) When it is helpful to identify an image (or image component) in terms of objective content, this identification may be included within the secondary alternative text of an image.

10.4.3 Including relationship information in text alternatives

a) Essential information about relationships shall be described within the main body of text or the primary alternative text of an image.

b) Significant information about relationships should be described within the main body of text or the alternative appropriate text of an image.

c) Helpful information about relationships may be included within the secondary alternative text of an image.

10.4.4 Including information on associated activities in text alternatives

a) Information on associated activities shall be included in the primary alternative text of an image.

b) Where only a single action can be performed, information on this action may be combined with identifying the component as an active component.

c) Where multiple actions can be performed, the image component should first be identified as being an active component, and then the various possible actions should be identified.

10.4.5 Dealing with large amounts of essential information

Where there is more essential information than will fit in the available space in the primary alternative text of an image, all of this essential information shall be placed in a text alternative in the main body of text.

10.4.6 Placing text alternatives in the main body of text

Where the text alternative for an image is included within the main body of text:

a) if the document type allows specifying an image-description relationship in a machine-readable way, this shall be used in addition to the manner specified in b);

EXAMPLE 1 In HTML5, the ARIA attributes aria-described by and aria-details can be used to indicate such a relationship.

b) the text alternative shall be preceded by a phrase indicating that it is serving as the text alternative for the image;

NOTE 1 This explicit phrase is important for conveying the purpose of the text alternative to persons who can otherwise think that this information is redundant with other parts of the main body of text.

EXAMPLE 2 The text alternative in the main body of text is preceded by, "[The following paragraph provides the text alternative for Figure 3]".

c) the primary alternative text for the image shall indicate that the text alternative for the image is presented in the main body of text;

EXAMPLE 3 The primary alternative text for an image is, "The alternative text for this image is in the main body of text, immediately preceding the image".

d) the text alternative in the main body of text should precede (rather than follow) the image;

NOTE 2 It is preferable for the text alternative to immediately precede the image, unless formatting considerations make this impractical.

e) text alternatives shall not be placed in annexes, appendicies, or other locations removed at a distance from the image for which they apply.

10.4.7 Handling conflicting information

Text alternatives for an image are intended to inform users of information that the image is communicating. There can be times when the image presents information conflicts with what is presented in the main body of text. The conflicting information could be intentionally or unintentionally presented.

a) If the conflicting information is intentionally there, then the information should be pointed out and explained as part of the text alternatives or the main body of text. Since the conflicting information was intentionally made available visually, it should also be made visible in text alternatives or the main body of text.

b) If the conflicting information is unintentionally there and recognizing this, the decision is made to retain the image despite the conflicting information, then the conflicting information should not be presented in the text alternatives.

11 Compose the text alternatives

11.1 Composition

There is a difference between identifying information about an image and composing suitable alternative text from that information. Once the information has been analysed for its importance and allocated to a particular type of text alternative (main text, primary alternative text, or secondary alternative text), care then needs to be taken to organize and word the information in a manner that works with the main text.

11.2 Organizing the information

11.2.1 Eliminating duplications

The guidance on identifying image components (see Clause 8) and identifying the content of images and their components (see Clause 9) is intended to help identify all the important (see Clause 10) information about an image and its components. In following this guidance, it is possible to identify some information multiple times (which is better than missing some of it).

It is important to remove redundancies when creating text alternatives, in order to make them concise and quick to use.

EXAMPLE Most relationships are two-directional. Thus is A is part of B, then B is composed of various parts including A. Only one of these two expressions of the relationship is needed in the text alternative in order to inform the reader.

11.2.2 Fitting into the context of use of the image

An image fits within its context of use. This context of use, especially information presented prior to the image and the caption of the image, can help a user to understand the image. This context of use can be important both to what is said and what is not said in text alternatives.

It can help to identify where the image provides further information and can suggest how to tie this information when presented in a text alternative into the information presented in the main text.

Where a document contains an explanation of an image, or other information that is also presented in the image, this information does not need be repeated within text alternatives, unless the image presents additional information related to it.

NOTE This is especially relevant if the information is presented in the main text before or near the image.

While this document does not provide guidance on writing captions, it is important that captions are not repeated word for word in alternative text.

11.2.3 Independence of importance from order

Importance is used for selecting the information to present, but not necessarily the order of presentation. While it is important to identify the type and purpose of an image before elaborating on the image, the order of presenting the rest of the information within a text alternative will depend on its context of use, the flow of the document, the style of the document and needs of conciseness and readability.

11.3 Wording text alternatives

11.3.1 Flow with the document content

It is important that the text alternatives be written in a way that when read it flows with the rest of the document content. Depending on how and where the image is positioned in the document, the text alternatives can be read at different times.

EXAMPLE A screen reader can begin reading the webpage content about Napoleon's adventures, then reads the text alternatives for the image of Napoleon, and then continues reading the webpage content about Napoleon's adventures. Flow can be improved if the text alternative speaks of this as an image of Napoleon the adventurer rather than just an image of Napoleon.

11.3.2 Style

Since text alternatives are part of a document, it is important that they be worded similar to how the main body of text is worded.

EXAMPLE 1 Where the main body of text is worded very formally, the text alternatives are also worded formally.

NOTE Style refers to how something is worded, not what is included in the wording. Thus formal styles, as well as all other styles, can be used to convey both objective and subjective information about an image.

EXAMPLE 2 Where the main body of text is worded like a story the text alternative is worded in a manner that fits into the story.

11.3.3 Conciseness and readability

While "a picture can be worth a thousand words", it is seldom desirable or appropriate to use nearly that many words to describe a picture in its text alternatives. It is important to get the message stated concisely and readably.

Writing concise and readable text alternatives can be assisted by:

a) combining ideas with simple, commonly understood words rather than expressing each of them in phrases or sentences;

b) introducing jargon and other concepts needed to understand and/or describe the image in the main body of text prior to the image;

c) keeping sentences simple, breaking complex ideas into multiple sentences.

If the important information presented by the image is short, there is less need to identify the purpose and type of image. Presenting the simple information is often sufficient.

As the amount of important information presented by an image increases, so does the usefulness of identifying the purpose and/or type of the image before presenting this important information. This will aid the reader in deciding whether to read the remainder of the text alternative or not.

11.4 Creating text alternatives

Once each piece of information has been allocated to the main body of text, the primary alternative text, or secondary alternative text (see Clause 10), organizing information into text alternatives should involve:

1) removing redundancies within the identified information;

2) composing appropriate wording for the text alternatives;

3) evaluating the text alternatives (see Clause 12);

4) iterating these steps until the text alternatives are acceptable.

12 Evaluate the text alternative

12.1 The range of evaluation issues

Text alternatives should be evaluated to ensure that they:

a) describe the type, purpose and context of the image;

b) work with the main body of text.

12.2 The range of evaluation methods and testers

Text alternatives should be evaluated by a range of methods involving different types of testers.

a) It is preferable that text alternatives within documents be evaluated by vision impaired users. This can determine if the text alternatives provide important information and whether or not the text alternatives flow with the surrounding content. It can also identify further questions about the image that visually impaired users may need to be answered.

NOTE 1 Since the text alternatives will more frequently be used by visually impaired users, they are the most appropriate people to perform the evaluation.

NOTE 2 Visually impaired users are not usually to evaluate how completely a text alternative describes the important information of an image.

b) Where visually impaired users are not available to evaluate the text alternative, sighted users can evaluate text alternatives in the document with the images not visible.

NOTE 3 Evaluations by users able to see text alternatives for images that they cannot see only approximate the evaluations that would be performed by visually impaired users. Users able to see have different expectations and needs that will influence the results of such evaluations.

EXAMPLE A webpage, using a text-only web browser or a web browser with images not presented to view the webpage can help a sighted individual experience a web page where text alternatives are needed.

c) The evaluation of text alternatives by people who can see the image can help determine if the text alternatives truly represent the content of the image and communicate the important information (or identify important information that is missing).

Annex A
(informative)

Further elaboration of objective content of images

A.1 General

This annex contains considerations that can be applied to the elaboration of a wide variety of images and is especially relevant to drawings and photographs. Annex B contains considerations that can be applied to specific types of images.

A.2 Characteristics of the image or image component

A.2.1 Elaborating on physical objects

Each object in the image can be considered as an image component. The following questions can be considered in creating text alternatives for images (or image components) involving physical objects:

a) What does the object represent?

b) What is the brand/model/part name (number) of the object?

A.2.2 Elaborating on people

Each person in the image can be considered as an image component. The following questions can be considered in creating text alternatives for images (or image components) involving people:

a) Who is the image or image component of?

b) What does the person look like? (Age, sex, nationality, hair colour, eye colour, hairstyle, etc.)

c) What is the facial expression of the person?

d) What is the person doing?

e) What position is the person in? (Standing with hands across the chest, for example.)

f) What other information about the person is important for users to know?

A.2.3 Elaborating on perceptual objects or persons

Perceptual content describes the physical appearance of the object.

NOTE Perceptual content describes low-level perceptual features of an image (or image component), in a manner similar to that possible by basic vision detection systems.

Typical perceptual features include: colour, texture, shape and pattern.

EXAMPLE Some perceptual features can be expressed as: blue, yellow, blue-green, aqua, smooth, rough, round, square.

Perceptual content does not assign any meanings to any of these features. Meaning belongs within subjective content.

The following questions can be considered in creating text alternatives for the perceptual properties of images (or image components):

a) What (are) the colour(s) of the image (or image component)?

b) What is the shape of the image (or image component)?

c) What is/are the size/dimensions of the image (or image component)?

d) What is the texture of the image (or image component)?

e) How is the image (or image component) positioned? (For example, sideways, angled, and facing left.)

f) What other perceptual information is important for users to know?

A.2.4 Elaborating on artistic characteristics

There are various artistic characteristics that can be used to describe an image.

It is generally possible to distinguish between:

a) a realistic image (or image component);

b) an abstract image (or image component);

c) a non-realistic image (or image component).

For works of art, it is often important to distinguish the school to which the image belongs (impressionist, surrealist, etc.).

It is sometimes possible to distinguish the source of the image.

A.2.5 Elaborating on locations/settings/places

While locations are also dealt with under "Where", there are situations in which a location is a significant component of an image. In these situations, a location also becomes a "What".

NOTE It is better to identify redundant information than to miss identifying important information. Redundancies can be eliminated when the actual text alternatives are written.

The following questions can be considered in creating text alternatives for images (image components) involving locations or places:

a) What is the location, setting or place depicted in the image (or image component)?

b) What specific landmarks are visible in the image (or image component)?

c) What other information about the location is important for users to know?

A.2.6 Elaboration on quantities

The following questions can be considered in creating text alternatives for images (or image components) with quantitative information (such as charts and graphs):

a) What is the quantity?

b) What is the quantity associated with?/What does the quantity represent?

c) What is the unit of the quantity?

d) Is the quantity fixed or dynamic?

e) What is the precision (or statistical significance) of the quantity?

