Accessible exhibitions

Criteria for eliminating communication barriers and facilitating access to contents

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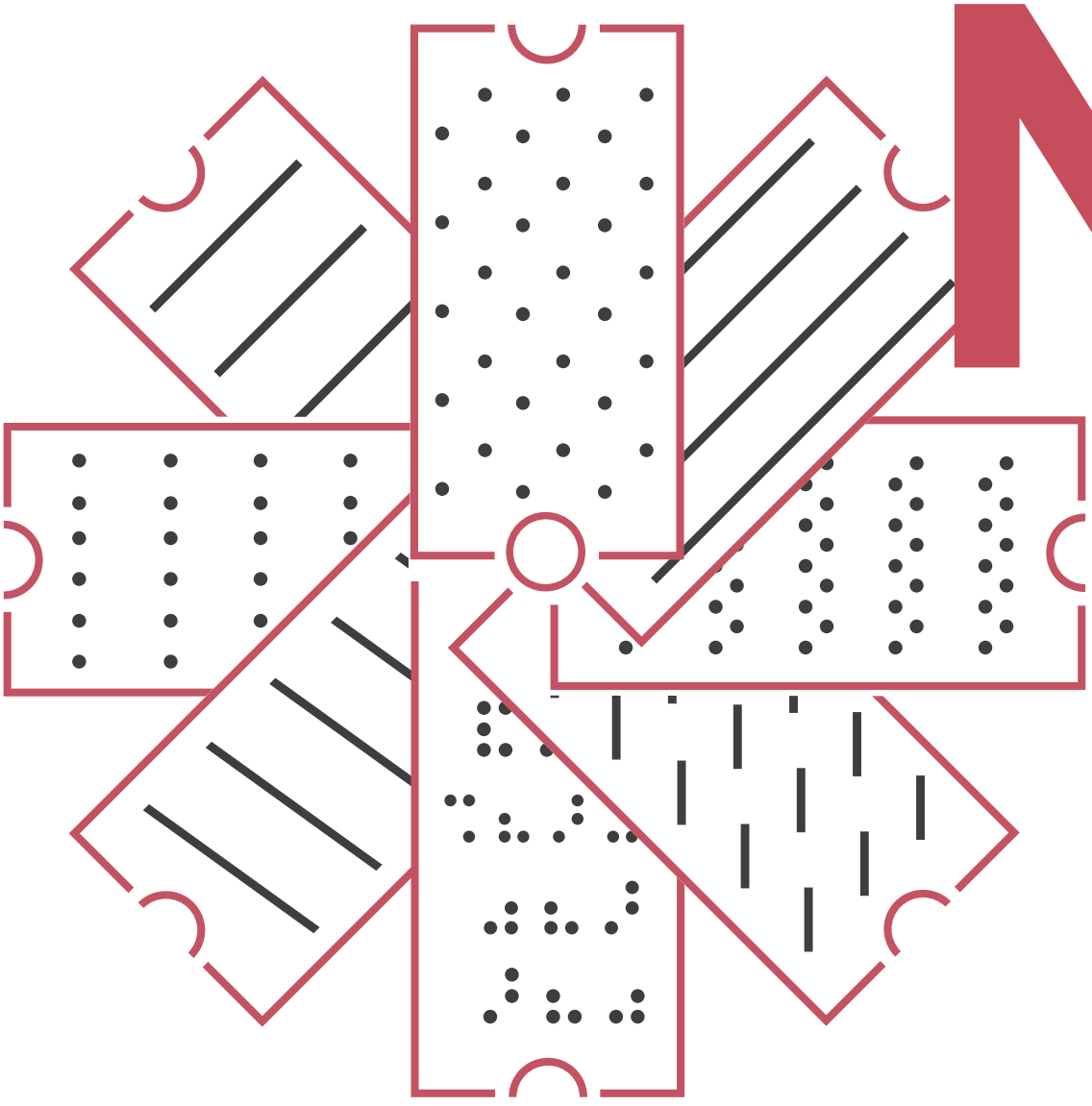

Ajuntament de Barcelona

The right to culture is an inalienable right inherent to every person. Equal opportunities in terms of access to culture, works of art, heritage and artistic practices is one of the values of identity.

UN Resolution 48/96

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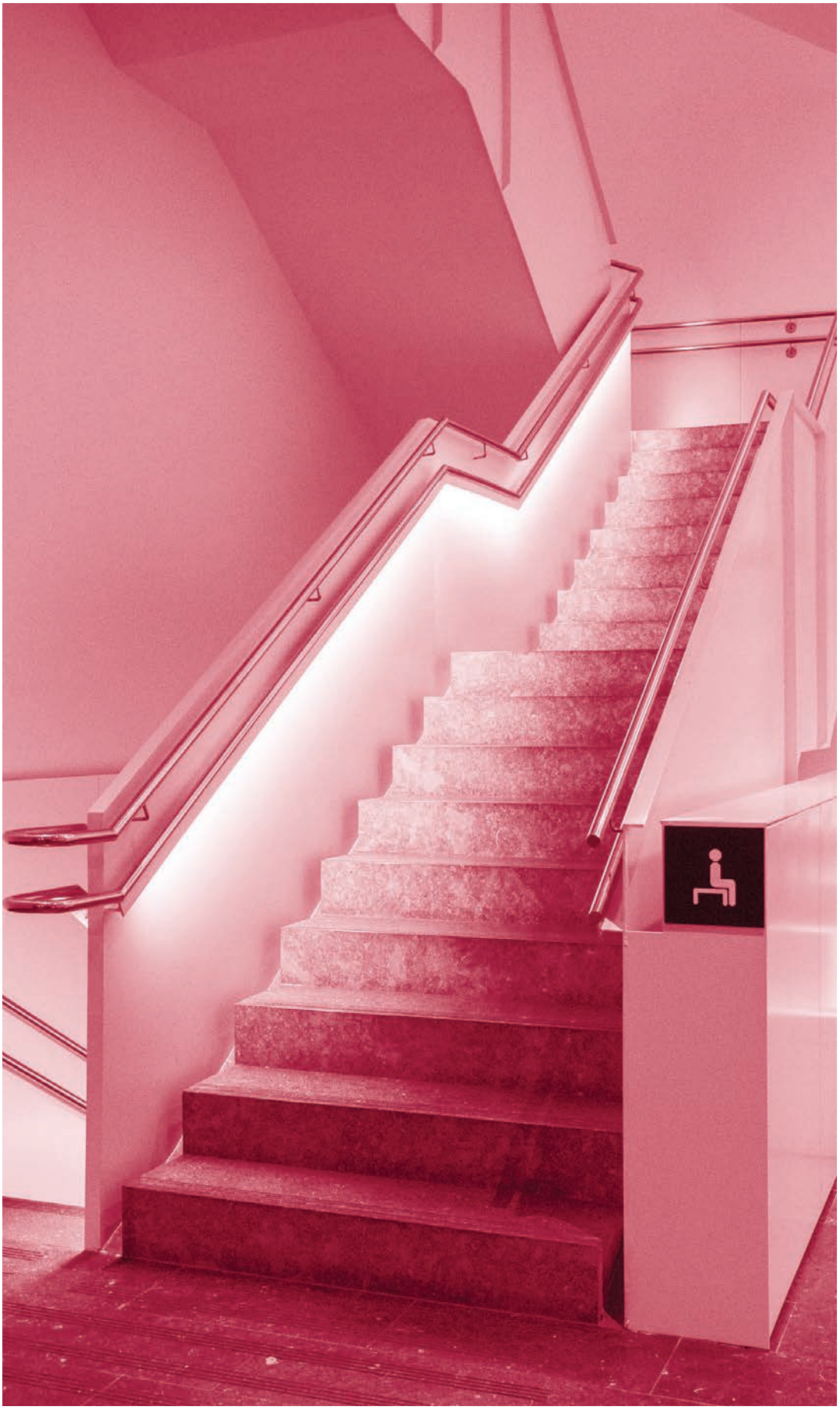
INTRODUCTION

Making the information and contents of an exhibition totally accessible to individuals who cannot see or hear them, or who have difficulties understanding them, may seem utopian. However, utopias serve as inspiration to advance. We have to take steps along the pathway to communicative accessibility with the goal of ensuring access to culture for the sake of normalisation and integration and out of respect for the dignity of individuals and their right to access culture.

The publication of the handbook *Accessible Exhibitions* seeks to contribute to moving towards this objective: eliminating the communication barriers that hinder part of the population from accessing cultural contents. This publication is an initiative which emerged during the joint working process carried out over the past few years between the experts at the Institute of Culture of Barcelona and the Institute of Persons with Disabilities, with the goal of improving the communicative accessibility of the leading museums.

Its organisation in the form of a Decalogue, with the ten points that should be borne in mind to make accessible exhibitions, seeks not only to encourage reflection but also more importantly to provide practical guidelines and recommendations on specific aspects.

WHAT DO WE MEAN
WHEN WE TALK ABOUT ACCESSIBILITY?



The concept of accessibility has evolved over the years. At first it was equated with eliminating architectural barriers and wheelchairs, but more recently its sphere of action has expanded to the world of culture and information. Now it takes into account other kinds of disabilities besides just physical or persons with reduced mobility (PRM).

> Accessibility is the degree to which everyone can use, visit or access a good or service regardless of their abilities.

We talk about motor accessibility when the goal is to overcome the physical or architectural barriers that hinder mobility, including ramps, lifts, platforms and other similar elements.

We talk about communicative accessibility when the goal is to overcome communication barriers that hinder access to informational and cultural contents, such as large fonts, easy reading, Braille code, sign language interpretation, live subtitles, magnetic loops, etc.

This is not only an issue of the rights of visitors[1] to a museum or exhibition but also a matter of social and economic benefits, given that accessibility:

- ✓ Is synonymous with quality.
- ✓ Reinforces corporate social responsibility (CSR).
- ✓ Is a way of attracting and gaining the loyalty of new audiences.

1 Royal Legislative Decree 1/2013, dated 29 November 2013, which approved the recast text of the General Law on Individuals with Disabilities and their Social Inclusion.

WHAT GROUPS BENEFIT FROM IT?

Accessibility benefits EVERYONE: it is essential for individuals with disabilities but is an advantage for everyone.

Within the enormous complexity, we usually distinguish between four major kinds of disability: physical or motor[2] , cognitive, visual and auditory.

Let us examine the three kinds related to communication barriers.

1. COGNITIVE, PSYCHOLOGICAL, INTELLECTUAL DISABILITY AND MENTAL DISORDERS

This includes people with:

Learning disabilities: Dyslexia, autism, Asperger's syndrome and others. They frequently have communication or social skill disorders.

Mental disorders: Depression and anxiety, among others. This does not mean that their intellectual capacity is in any way diminished.

Neurological diseases or genetic disorders: Alzheimer's, Down syndrome, Tourette's and others. They affect areas of the brain which coordinate important mental activities like memory or speech.

Behavioural disorders: Attention deficit, hyperactivity and others.

... and many more.

2 They are not included in this publication because we are only discussing communication barriers, not physical or architectural barriers.

2. VISUAL DISABILITY

This includes people with:

Congenital blindness. These are people who are “legally blind”, also known by the abbreviation B1 (from Blind 1, or *first level of blindness*). They have at most 10% visual acuity or visual field. In Spain, almost all of them are ONCE members and use the universal reading and writing system, Braille. They get around with a white cane or a seeing-eye dog. Some of them have a small percentage of sight. Those who have total congenital blindness have never seen colours and have no visual memory, but they can have quite a high degree of autonomy and integration.

Acquired blindness during childhood or adulthood, either suddenly or gradually. They are also classified as B1. Many of them have learned the Braille system. They have visual memory which is more or less vivid. The psychological process of a person with acquired blindness may be long and complex.

Partial blindness, classified at the B2 level. They have more than 10% but less than 50% sight. They are not ONCE members. They are difficult to identify since the majority do not use a white cane and seeing-eye dog. Their low vision often leads to major difficulties and insecurity.

Partial sight higher than 50%, also known by the abbreviation B3. They use glasses and optical aids.

The elderly in general. Because of their age, most of them tend to be classified as B3.

3. AUDITORY DISABILITY

This includes people with:

Profound deafness, when the auditory loss is higher than 90dB (decibels).

Severe deafness, when the auditory loss is higher than 71 dB but lower than 90 dB.

Moderate deafness, between 41 and 70 dB. To contextualise this, a person's normal speech is between 50 and 60 dB.

Mild deafness, when the auditory threshold fluctuates between 20 and 40 dB.

The elderly in general. Because of their age, most elderly people have some degree of deafness.

Depending on when the onset of deafness occurred, we distinguish between:

Prelingual deafness, before acquiring the oral language (age 0 to 2).

Perilingual deafness, which appears between the ages of 2 and 4.

Postlingual deafness, when the person loses their hearing after having acquired the oral language. In this case, lipreading tends to be a good addition to a hearing aid or cochlear implant.

Depending on how they communicate, we distinguish between:

Sign language. Sign language is a language of its own which has been legally recognised in Catalonia[3] since 2010: Catalan sign language.

3 Law 17/2010, dated 3 June 2010, on Catalan sign language. Approved in the plenary of the Parliament of Catalonia. (Official Journal of the Government of Catalonia no. 5647).

Speech. Some people with hearing loss communicate with speech.

In short, we are talking about a very broad, diverse public in which the boundaries between classifications are inevitably blurred and imprecise, especially when there are multiple disabilities (deafness and blindness, neural disorders associated with a mobility problem, etc.).

Finally, we should bear in mind that disability is closely related to:

- ✓ Any person who temporarily suffers from a diminution of their abilities because of an illness.

- ✓ The elderly, an important sector of the population that is only growing.

DECALOGUE TO MAKING ACCESSIBLE EXHIBITIONS

Decalogue to making accessible exhibitions

1. Buy-in and commitment of all the stakeholders involved
2. Appointing an access officer
3. Applying the principles of universal design
4. Understanding the general guidelines which improve accessibility and inclusion
5. Being familiar with specific accessibility resources
6. Training staff that deals with the public
7. Ensuring that the website is accessible
8. Communicating and sharing accessibility resources
9. Listening to users' opinions
10. Continuity and improvement

1. BUY-IN AND COMMITMENT OF ALL THE AGENTS INVOLVED

Accessibility is not a marginal or isolated issue. It is cross-cutting because it in some ways affects all the areas of museum management:

- ✓ The management. It is essential for the highest echelons in the organisation to be sensitive towards accessibility, and that they earmark part of the budget to programmes and resources.
- ✓ The curator. It is very important for the curator to clearly understand accessibility and to facilitate access to the contents for all audiences, highlighting and prioritising the most important part of the message they want to convey.
- ✓ The head of exhibitions. They must integrate the general accessibility guidelines into the set-up of the show.
- ✓ Educational services. They must design the guided tours, workshops, teaching materials, etc.
- ✓ The programmes or activities. They should be borne in mind when organising lecture series, round tables, plays, concerts, etc.
- ✓ Communication. The museum must ensure that the information is clear and the media are accessible, and they must disseminate the existing resources.
- ✓ Staff attending to the public. They must interact with visitors with disabilities at the reception or as docents-guides, monitors, gallery guards, etc.

Important

- ✓ Accessibility criteria must be incorporated from the very start and must be a requirement from the moment of assignment.
- ✓ The briefing should include a permanent section on accessibility measures. Furthermore, the commitment to making an accessible exhibition should be reflected throughout the entire process and development of the show.
- ✓ The curator's instructions on the essential contents of the message to be conveyed and the key ideas and pieces in the exhibition should serve as the basis for working on communicative accessibility.

2. APPOINTING AN ACCESS OFFICER

Since accessibility is cross-cutting, an access officer is needed who:

- ✓ Ensures and guarantees compliance with the Decalogue.
- ✓ Internally coordinates all the departments and stakeholders involved.
- ✓ Serves as the external interlocutor for visitors with special needs.

The figure of the Access Officer is common within the organisations of some museums with large operating structures, such as New York's MoMA, the Tate Modern in London and the Reina Sofía in Madrid. It is logical for these large cultural centres to have assigned the job of overseeing accessibility to a specific person. Sometimes it is a member of the museum staff, or even a specific department; other times this job is taken on by the educational services department, the audience management department, etc., and in some cases, an outside professional is sought.

Regardless, it is important that someone should be responsible for and monitor issues related to accessibility. As mentioned above, everyone should be involved, but not everyone is an expert in communicative accessibility or is aware of the needs of individuals with disabilities, so it is essential to work closely with individuals with disabilities themselves and specialised organisations. Often there is an erroneous idea that volunteers and the willingness to "help" are all that are needed; however, the reality is much more complex and requires professionalism and rigour.

The prime responsibilities of the Access Officer are:

- ✓ To be aware of the essential contents that the curator wishes to convey.
- ✓ To ascertain the resources available to the general public.

Based on this, they must determine what needs to be done to equalise access for everyone to at least the main message of the contents.

3. APPLYING THE PRINCIPLES OF UNIVERSAL DESIGN

Universal design, also called *inclusive design* or *design for everyone*, is defined as:

> The intervention in a built environment, a product, the communication and services aimed at offering everyone the same opportunities, preferably without having to resort to adaptations or specialised solutions.

In an exhibition, the general principles of universal design can be applied to specific actions, as shown in the table below:

PRINCIPLES OF UNIVERSAL DESIGN	SPECIFIC EXAMPLES OF APPLICATION
Equitable use The design should be easy and appropriate for everyone. Everyone should be able to use it in the same way or at least in an equivalent way.	Site map (integrated with ink, relief and Braille).
Flexible It should adapt to different preferences and ways of being used.	Multimedia audio or video guides (information in sign language, subtitles, audio descriptions and magnetic loops).
Simple and intuitive It should be understandable to everyone, regardless of their experience, knowledge or level of concentration.	Clear, simple gallery texts.
Perceptible information The user should be able to receive information easily, regardless of their sensory abilities.	Possibility for blind individuals to touch the most important pieces.
Low physical effort The design should be usable with the minimum effort possible.	Signs with large font.
Appropriate size The measurements and spaces should be suitable for any user to be able to use them, regardless of their age, height, position or mobility.	Plenty of space between glass cases, seat rental, height of the pedestals, etc.

4.1. GRAPHIC DESIGN GUIDELINES

With graphic design, in terms of text design, we talk about the level of legibility when referring to the formal characteristics that make a text easy and pleasant to read.

Negative texts (white over black or a colour) cannot be too long; it is only recommended for titles, citations or phrases. To even better distinguish them, it is a good idea to leave a bit more space between the letters, and between the lines as well, than with a positive text. This is because the shape of the negative letters has to “compete” more with the background colour.

Here are a few more recommendations: do not superimpose the text over printed images or use transparent glass panels in the middle of the exhibition area. The letters can be confused with the background images or with what can be seen through the glass.

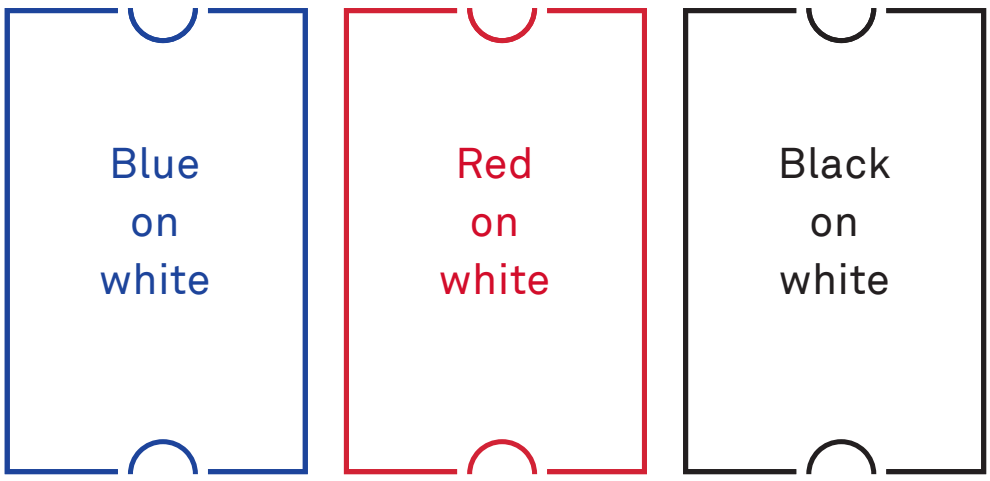
The ideal conditions for reading and identifying graphic objects is when there is clear contrast, such as by using black on white or a dark colour over a light one.

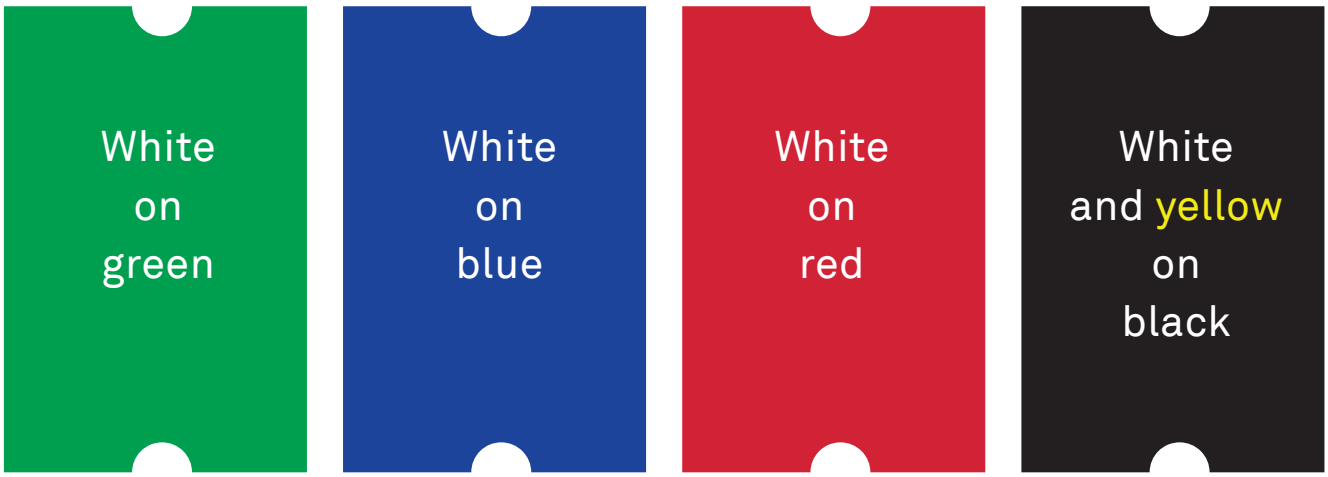
Colours and contrasts

It is still common to find signs with white letters over a light grey background in an exhibition gallery. It goes without saying that it is hard to read, even for those with good sight.

Remember that the less contrast there is between the colour of the letter and the background, the lower the legibility.

Example of colours with strong contrasts



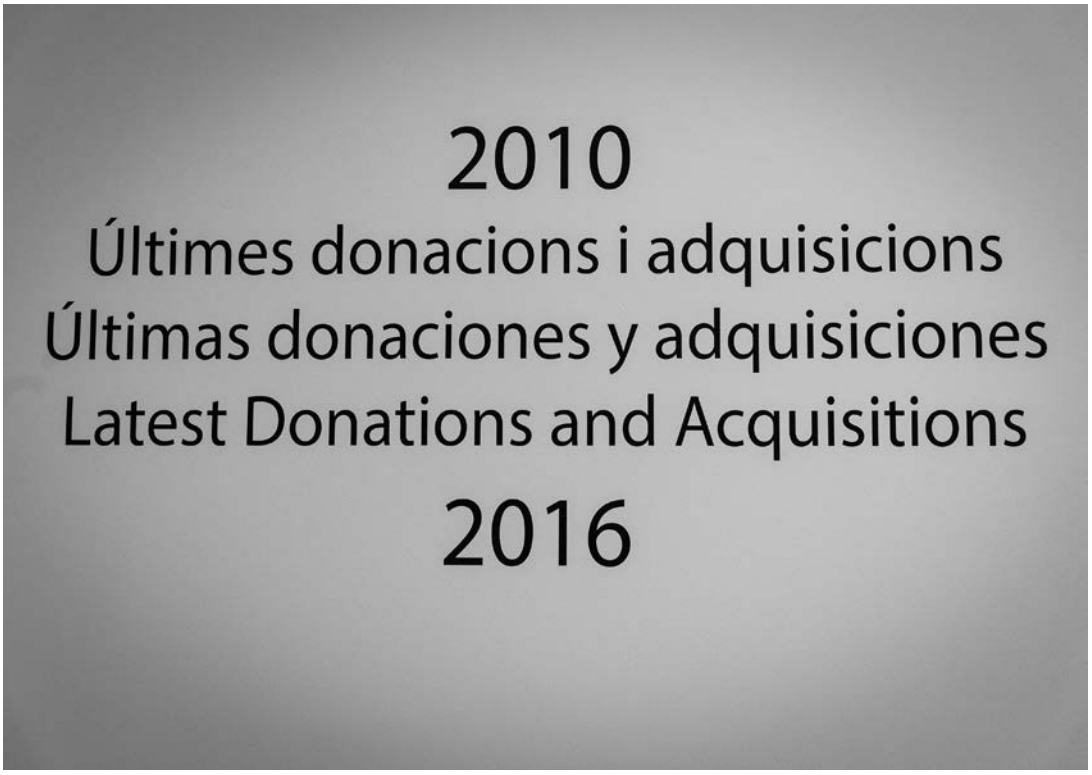


Kinds of lettering

Sans serif lettering is more recommended and accessibility than serif lettering. Thus, the most appropriate fonts are the straight ones, like Verdana, Arial, Helvetica and Universal.

Italics, which is useful to emphasise a certain word, is not recommended for long texts because the inclination makes it more difficult to read. Likewise, it is recommended not to write long phrases in upper-case letters, since it eliminates clues that assist in reading, such as the difference in letter height.

Nor is it a good idea to choose thematic lettering that is supposedly related to the theme of the exhibition. Lettering with a "Mexican" feel for an exhibition on Mexican art, or lettering with a rustic appearance for an archaeological theme not only brings triteness to the content but also makes reading more difficult.



Font size

One of the most common disputes between users and designers comes from the designers' absurd habit of using font sizes that are too small. Design for everyone requires good reading conditions, and this means that the font should be large enough, even if it is far from the aesthetic canons.

The recommended font size is at least 12 for the text body. From there it can be larger depending on the need. For example, one very appropriate text font size for dossiers or gallery notes is 18 font for the text body with line spacing of at least 1.5.

The space between letters and words corresponds to the font, except in the case of negative fonts, in which these spaces should be enlarged.

Titles and headers should be clearly different (bold, larger font, etc.).

The distance from which the person reads a sign, a gallery text, a poster, etc., should be considered.

SIZE OF FONTS ON SIGNS BY READING DISTANCE

Distance	Minimum size	Recommended size
>5.00 m	7.0 cm	14.0 cm
4.00 m	5.6 cm	11.0 cm
3.00 m	4.2 cm	8.4 cm
2.00 m	2.8 cm	5.6 cm
1.00 m	1.4 cm	2.8 cm
0.50 m	0.7 cm	1.4 cm

Alignment

Contrary to common practice, the text should be aligned on the left, not justified on the right. A text is more legible when the lines zigzag on the right depending on the size of the last word, instead of occupying a perfectly square or rectangular space. This helps the reader jump more easily from line to line and not get lost in the text.

Proximity to the objecte

Respecting the logic of how the pieces in the exhibition are viewed, the texts and graphics that identify each of the objects should be as close to them as possible so there are no doubts what each object is and no need to constantly move or search for them.

For example, in a glass case which contains numerous objects with just one sign for all the pieces displayed, it is a good idea to reproduce a photo or drawing of the object next to the text that identifies it. When there is just a number or a blank square, it is harder to locate the item and relate it to the text.

The same criterion can be applied to printed matter in terms of illustration captions; the reader should be spared extra effort, such as having to look on another page to identify a picture.

4.2. EASY READING GUIDELINES

The expression easy reading takes into account both formal aspects of graphic design —discussed above— and linguistic aspects of the content.

In terms of the wording of texts, the level of readability refers to the content of the message: the tone of the text, syntax, terminology, and length of text blocks and sentences, which make a text clear and intelligible.

Writing in simple language is difficult because of the danger of falling into banality or lowering the level of information or accuracy. However, this should not hinder us from bearing in mind that a clear, short text always reaches a broader audience.

Tone of the text

It is important to write exhibition texts with the goal of their being understood by the majority of the public. The concepts must be explained as clearly as possible.

Generally speaking, it is a good idea to thematically organise the blocks of information, to place them in a hierarchy if needed, to follow the logical principles of the order of sentence parts and to avoid complex syntactical constructions. Regarding the vocabulary, it is not a good idea to use rhetorical forms, repetitions, literary vocabulary, technical jargon, etc. Instead, they should be replaced with other, plainer words, and if this is impossible, they should be defined.

Length of the text

For many curators and content creators, one of the most difficult temptations to overcome is writing texts that are longer than what visitors can digest. It is important to understand that reading and looking are not the same. Reading requires concentration and a relaxed body, attitudes which we usually only have when we read sitting down. The texts in an exhibition are almost always written on vertical supports; they must be read standing up, and they are often complementary to what is on display. Furthermore, visitors have a very different sense of time than when they are reading on paper. Reading in this situation is cumbersome. One good tip to avoid making overly long texts is not to exceed 500 characters per each text block which requires patrons to stop and read while standing.

On the other hand, short or summary texts can be a good alternative when making accessible formats of brochures in augmented lettering or easy-reading versions.[4] Below is an example of the same text in two different versions depending on the support where it must be read.

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4 Easy-reading materials are considered necessary for 30% of the population with reading difficulties. The Easy Reading Association of Spain (www.lecturafacil.net) develops books, documents, website contents, etc., following the international guidelines of the IFLA (International Federation of Library Associations) and confers the corresponding logo.

Example of a text that is appropriate for
being read in the exhibition book-catalogue:

Starting in the 1960s, some artists began to work outside the objectivity of the Informalism and Abstract Expressionism which were so popular at the time to instead open up new pathways, invent new forms of cooperation and erase the boundaries between art and life in a new aesthetic climate that challenged the preestablished notions of content, style, medium and audience. The new expressive strategies question the role of the artist in society and revisit the notion of art associated with personal identity. New attention to the spectacle of everyday life characterises their inquiry, taking cuisine as a site of imagination and cultural production and real food as the matter of creation, elevating food to the category of work of art.

The same text shortened and suitable to be read in the gallery
or by an easy-reading version in large letters:

Starting in the 1960s, some artists began to erase the boundaries between art and life and question their role in society. The spectacle of everyday life inspired inquiry, and food became a site of imagination and cultural production. Food was elevated to the category of work of art.

SUMMARY TABLE:
LEGIBILITY AND READABILITY GUIDELINES

DO

- ✓ Texts with strong contrasts
- ✓ Lettering on a solid background
- ✓ Sans serif lettering, Upper-case, italics or negative text only for titles, headings or short phases
- ✓ Text aligned on the left
- ✓ 18-point letter body for dossiers and gallery information
- ✓ Multiple signs nearby and with photos or drawings
- ✓ Simple syntax
- ✓ Wall texts with at most 500 characters
- ✓ Accessible, easy-ready formats

DON'T

- ✗ White lettering on light grey background
- ✗ Letters on transparent glass
- ✗ Serif letters
- ✗ Long texts with upper-case letters, italics or negative text
- ✗ Justified texts
- ✗ Text body in small letters
- ✗ Multiple signs far away and without photos or drawings
- ✗ Rhetorical texts
- ✗ Lengthy wall texts
- ✗ Complex, rhetorical writing

4.3. LIGHTING GUIDELINES

✓ Lighting should not produce glare, reflections or shadows.

✓ The majority of people with vision problems need generous lighting, but it is even more important that the lighting is thoughtfully distributed. The following criterion is often used: there should be a 1-3-5 relationship according to the observation point (1 for general lighting, 3 for the immediate environment and 5 for the point of observation).

✓ Direct glare can be avoided by placing the light sources outside the field of vision.

✓ Strong lighting contrasts should be avoided both indoors and outdoors, as well as between the different galleries. The change in lighting level causes disorientation and requires adaptation time.

✓ The points of interest should have focused lighting that makes them easy to find.

✓ When conservation guidelines do not prevent it, the lighting of objects should be at least 100 lux. The recommended range is 150 to 300 lux.

✓ If the conservation of the pieces requires dim lighting, a good solution is to compensate it by using bright colours on the elements which serve as the backdrop to the objects.

5.1. TACTILE RESOURCES

These are essential for blind people, but in general they are also quite useful and worthwhile for everyone. Offering blind visitors tactile resources – even if the possibility of touching is reserved just for them – has a very positive awareness-raising effect in other visitors.

Deciding what tactile resources to make available to the public in a given exhibition is a complex matter. It all depends on the theme, the nature of the pieces displayed, the possibility of making replicas, etc.

OPTIONS TO BE CONSIDERED WITH REGARD TO THE MATERIAL CONTENT OF THE EXHIBITION

✓ The ideal option

It is ideal if certain works can be explored by touch (only for the blind, without gloves[5] and under the supervision of the guide or docent from the museum).

It is true that the curators and conservators often shudder at this suggestion and rule it out outright, but it is worth insisting. Conservation concerns do not justify a sacralisation of the work of art to such an extent that they render it inaccessible and prevent a blind person from the aesthetic experience of learning about it.

✓ A life-sized replica

Or scale models of some of the particularly important pieces is an optimal solution.

✓ Other kinds of educational elements

They can help make the contents of an exhibition more accessible, such as relief diagrams of flat works, displays of the materials used to make some pieces, the tools used in a given technique, etc.

5 It is essential to debunk the idea that blind people must use gloves to touch sculptures and other objects. In the words of a blind person, "*That's like giving seeing people sunglasses to see the exhibition*". It is sufficient to take the precautions dictated by common sense (clean hands, no jewellery, etc.).

SOME CONSIDERATIONS ON THE SENSE OF TOUCH

✓ Touch is sequential and analytical, while sight is global and synthetic. Tactile exploration is a process that goes from the detail to the whole; from the parts to the whole. In contrast, with sight, the first thing we see is an overview of the whole, and only after that, when we stop to look at specific parts, do we see the details. It is important to bear in mind this different – even opposite – way of perceiving an object using sight or touch.

✓ Tactile exploration requires time. It is very important to bear this in mind in order to carefully select a limited number of elements to be touched (generally speaking, no more than five per visit).

✓ The sense of touch, and more specifically what is called haptic perception, allows properties of objects that are often invisible to be captured. Sight is more centred on knowledge and structural properties (shape, size, colour); in contrast, touch also analyses substantial properties (texture, temperature, hardness).

KINDS OF TACTILE ELEMENTS

1. Scale models

They are appropriate for conveying:

- ✓ Architecture and urban design: a building, a neighbourhood, a kind of construction. Examples that already exist *in situ*: the scale model of the Born market building, the Miró Foundation, the staircase on the roof of La Pedrera, the Gothic arches in Drassanes, etc.
- ✓ Large structures and objects. Successful examples that have been made of an exhibition include a mill that generates wind energy, an old carriage, etc.

Guidelines to bear in mind:

Size

- ✓ The width of a tactile model should not exceed 135 cm, and in any case, all of it should be able to be spanned with the arms partly open.
- ✓ A smaller size is preferable over an overly large size. A small model measuring 30 or 40 cm which can be scanned by the hands is extremely effective.

Materials

✓ They should be sturdy and durable, and always easy to maintain.

✓ They should be high-density; there are many different kinds, including wood, resin, methacrylate, polyurethane, etc.

✓ If possible, the finish should resemble the work represented as realistically as possible in terms of both the colours and the textures.

✓ When the goal is to highlight the volumes and shapes, the colours and textures can be done away with.

✓ Sharp edges should be avoided and all edges and other finishes should be thoroughly sanded so that no one hurts themselves on it.

Pedestals and signs

✓ The height of the pedestal should not be more than 90 cm off the ground.

✓ The model should be placed on a flat, horizontal surface, while the legend is best read on an inclined plane. Recommended incline: between 15 and 30 degrees.

✓ The signs and all the information that accompanies a tactile model should be written in large characters and Braille. If the Braille is on a transparent adhesive sheet, it can go over the printed lettering. If the Braille and the lettering are separate, the Braille should be placed under the lettering, never over it.

✓ It is very important to indicate the scale of the model in understandable figures (1:200, 1:100, 1:50, etc.). For example, a scale of 1:85 is impossible to understand. It is very useful to include a familiar referent (a human figure, a car, a bus, etc.) which can be used to compare the sizes.

2. Life-sized replicas

The aforementioned guidelines on size, pedestals and signs are valid for life-sized replicas as well.

Important! The new technology of 3-D printers offers many possibilities to produce models and replicas.

3. Location and orientation maps

They are useful for everyone because they integrate:

- ✓ Sight and touch
- ✓ Ink and colours with reliefs and textures
- ✓ Large fonts and the Braille system

Guidelines to bear in mind:

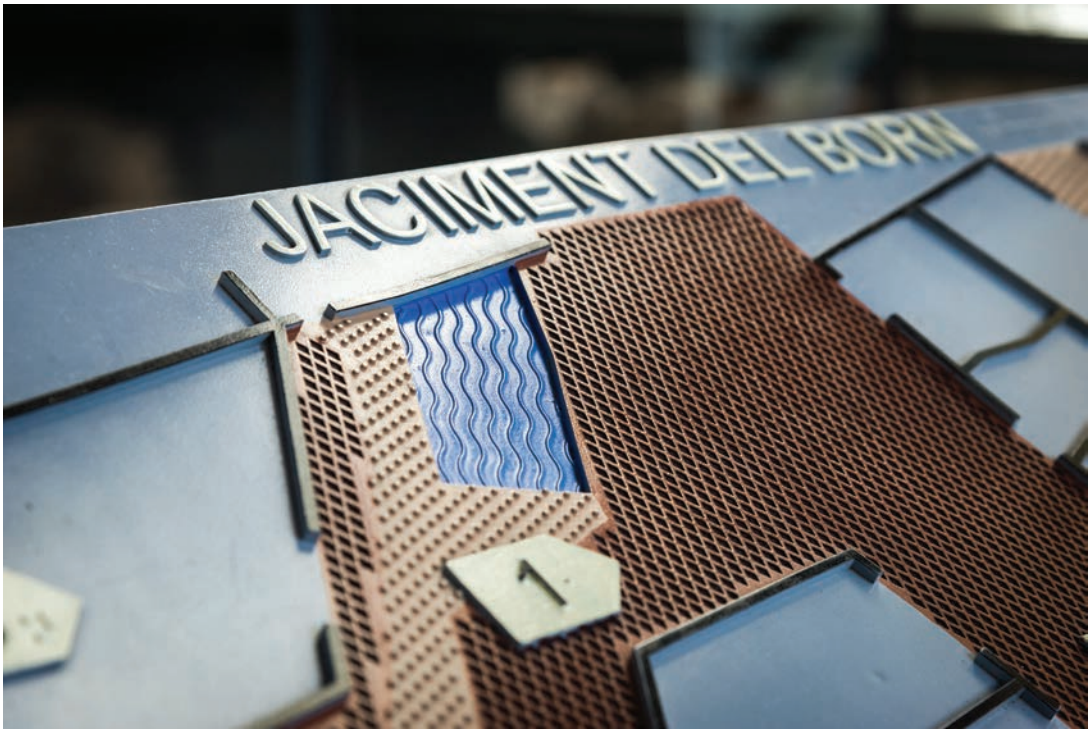
- ✓ It is essential to provide information, but not too much: It is essential to choose what is relevant and not overfill the lines of relief and the textures. Don't forget that too much information is like no information, and in this case the accumulation of data can hinder clarity.

- ✓ The best idea is to place them on a pedestal, such as a lectern, with an inclination of between 15 and 20 degrees.

- ✓ The orientation of the map should match the layout of the real space: if you have a lift on the right when you're reading the map, the lift icon should also be on the right side of the point that says "You're here".

Kinds of maps

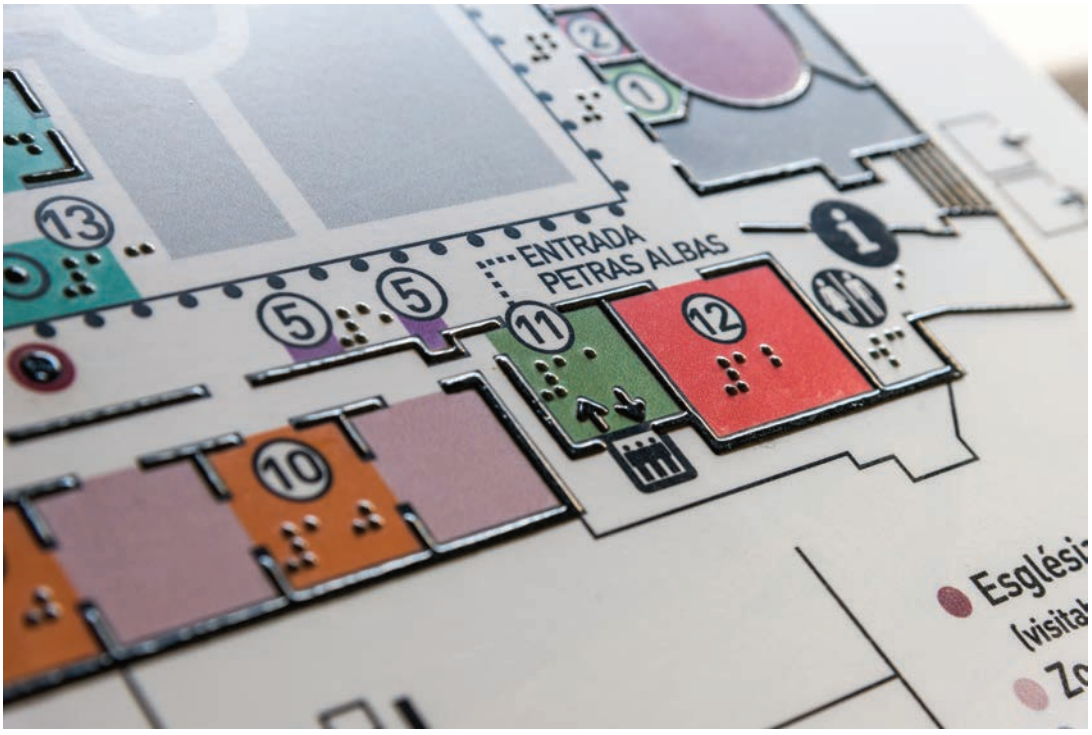
In 3-D over an aluminium or Corian plank around 5 cm thick



These are appropriate to make the volumes and levels of the architectural complex or a natural space understandable, rendering stairs and ramps, mountain reliefs and the like in a less abstract and more lifelike way. Made of sturdy material that is immune to vandalism, they are solid, heavy pieces which should be mounted on a stationary pedestal.

Even though the size can vary depending on what is depicted, an optimal size is 45 x 64 cm.

In relief on vinyl or another flat surface



They are appropriate to represent the layout of a floor or a geographic map.

Made of lighter-weight material, they tend to be fairly study and durable. They can be installed permanently on a pedestal, but they can also be transported for routes or itineraries.

The size is variable, but when it is not a static element the size should be limited to a maximum of 40 x 30 cm.

In relief on microencapsulated paper[6]

They are appropriate for very simple representations. They have a single level of relief which is complemented with different textures, generally black.

They are not integrated elements (and are not very useful for people who see them), but they can be a highly effective tool for the blind.

The usual size is DIN A4 or at most DIN A3.

Made of destructible material with limited durability, they are nonetheless very versatile and different copies can be made both for use by blind visitors and to be included in a dossier.

6 This is a special paper made of microcapsules. After being printed and exposed to a heat source (fuser), the lines represented on the sheet become raised.

4. Relief diagrams of flat works

Painting, drawing, engraving, photography and generally any two-dimensional work of art can be verbally explained and described to a blind visitor. However, having a relief diagram of the work being discussed is a very useful addition to help them better understand it. Explanations of the context by themselves – and even more meticulous descriptions – are insufficient.

Guidelines to bear in mind:

✓ A relief diagram that is not accompanied by any kind of explanations becomes incomprehensible by touch.

✓ The relief version of a flat work allows the blind person to discover the shapes of the figures and objects depicted in a painting, as well as their proportions with regard to both each other and the edge of the canvas.

✓ Relief diagrams are appropriate for reproducing not only drawings but also signatures, borders, schemas, etc.

✓ Not all blind people know how to interpret lines and textures with the same skill. Previous training is needed, and a person who has used this kind of educational material at school will always be more skilled. In any event, recognising lines and textures via the sense of touch is always enriching and a learning experience that reinforces the didactic aims of an exhibition.

✓ It is strongly recommended to make tactile diagrams over a colour reproduction of the work being explained – in a simple medium, DIN A4 size, for example – and to include basic information from the sign in ink and Braille. It thus becomes an integrative, easy-to-use element which is valid for both blind and seeing patrons. Furthermore, people with low vision can look as closely as they must to the photographic reproduction sheet and thus appreciate what they can't make out from the original work displayed on the wall with greater detail.

SUMMARY TABLE.
TACTILE RESOURCES

It is essential to have tactile resources in an exhibition.

Touch is sequential and analytical, while sight is global and synthetic.

Tactile exploration needs time; it is a slow process.

Options of tactile elements in an exhibition:

- If possible, the original pieces.
- Scale models.
- Life-sized replicas.
- Location and orientation maps.
- Relief diagrams.
- Samples of the materials used to make some works.
- Tools used in the technique.

The decision is complex and the choice should be made with care: no more than five elements.

5.2. AUDIO DESCRIPTIONS (AD) FOR THE BLIND

DEFINITION [7]

"Audio-descriptions are a communication support service which consists in a set of techniques and skills applied with the goal of compensating for the inability to capture the visual part contained in any kind of message by supplying appropriate sound information that translates or explains it, so the potential visually disabled receiver perceives this message as a harmonious whole and as similarly as possible to the way a seeing person perceives it".

Stated as concisely as possible, it is "the visual made verbal".

7 According to the UNE 153020 standard from January 2005: *Audio descriptions for visually disabled persons. Requirements for descriptions and the development of audio guides.*

Within a museum or exhibition, audio descriptions for the blind will vary depending on the medium and context:

A.D. ACCORDING TO THE CONTEXT	CHARACTERISTICS OF THE A.D. SCRIPT
Recorded in an audio guide.	It should be simple and easy to understand, designed for a diverse audience, and with sound effects if possible.
As part of the explanations on a guided tour.	It allows it to be personalised more and tailored to the characteristics of the receiver (see the guidelines below).
In audiovisuals, especially those with many images without a narrator's voice.	Just like in cinema and television, the script should be highly objective: simply explain what is seen.
Printed as part of a dossier to accompany tactile diagrams.	The descriptions to be read in ink or Braille can be more precise in terms of dates, exact sizes, etc.

Guidelines to bear in mind when describing a work of art:

✓ Information on the sign

Provide the same basic information as for any other visitor (title, author, date, provenance and especially size). In terms of size, it may help to compare it to an everyday or familiar object.

✓ General summary

Provide an overview of the work being described: what it is, what it represents, what the composition and colours are like, etc.

✓ Orientation and directions

Provide specific, well-organised information on the objects and figures depicted in the work (one useful method is to refer to the numbers on a clock).

✓ Technique and material

The technique used and the material from which a work of art is made is essential information that must be explained. Depending on the case, it should be mentioned earlier or later, with more or fewer details.

✓ Style

If needed, mention the style (school, movement, period) to clarify some of the defining features such as the use of colour, the subject or the treatment of the representation.

✓ Clear and precise language

This is the golden rule: clear, precise language is essential to a good description. If expressions or terms from the visual arts are used (perspective, vanishing point, etc.), they should be explained.

✓ Indicate where the work is located within the context of the exhibition

The place where the piece is installed is important, as is information on the spatial context and its relationship with the other works on display.

✓ Use the other senses as analogies of sight

In given cases, it may be useful to translate a visual effect to the sensations that come from the other senses. For example, the notion of perspective in a painting can be clearly compared to sound (just as the volume of a sound diminishes as it gets further away, the size of the objects depicted in a painting also changes with distance).

✓ Contextual information

Add the same contextual information on historical or social factors that are provided to seeing patrons.

5.3. ACCESSIBLE FORMATS WITH AUGMENTED LETTERING AND BRAILLE

The handbill of an exhibition or other informative brochures tend to have very small lettering which is possible for much of the audience to read. However, alternative formats should be offered in printed materials so that everyone has the same opportunities.

Guidelines to bear in mind:

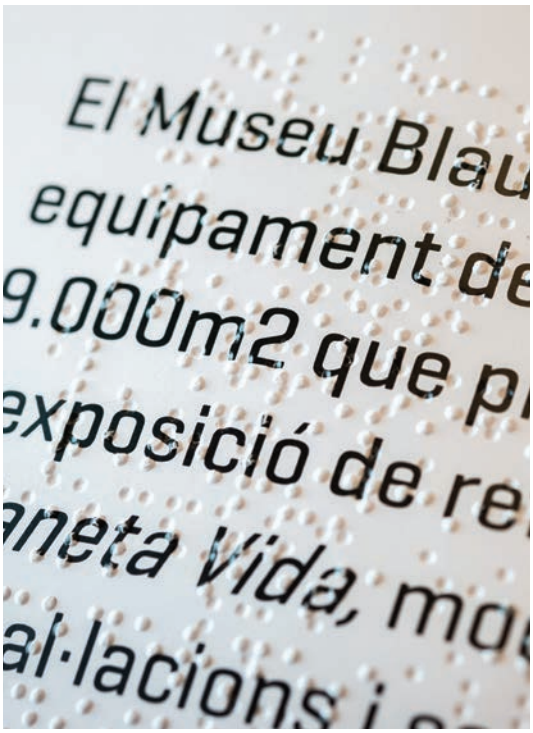
✓ An integrated version in ink and Braille is unquestionably the best option. If this is not possible, it is also acceptable to have separate versions: one with augmented letters and another only in Braille. In both cases, the texts should be summarised following the legibility and readability guidelines outlined above.

✓ The augmented lettering version can be very simple. Just print the text on DIN A4 paper, in 18- or 20-point Arial font and give these sheets out stapled to the brochure or original printed materials.

✓ For the Braille version, a transcription of the content can be made on blank sheets and they can be offered to blind patrons.

✓ The printed informational pieces that are given out free to the general public should come in alternative formats and should also be given out to anyone who requests them.

✓ At the counter or brochure rack, a sign should be added saying that the information is available in augmented lettering and Braille.



5.4. OPTICAL AIDS

Magnifying glasses and other optical aids are a useful resource for everyone at an exhibition.

Examples of good practices:

- ✓ Loans of monocles at the reception desk for the individual use of any visitor who wants to look at the works in greater detail without getting too close to them. For this same reason, ocular lenses are also useful for people who use a wheelchair
- ✓ Magnifying glasses with handles and lights at the reading tables.
- ✓ Augmenting lenses next to certain small objects as part of the overall set-up of the exhibition, to be used or not as each patron wishes.

5.5. TACTILE PAVING SURFACES

Areas of tactile paving surfaces, which blind people can detect with their canes, are becoming more common in public spaces, especially in means of transport (such as underground, train and bus stations).

When adaptations are offered to sight-impaired patrons in a museum or exhibition, installing tactile paving surfaces or paths is a measure that may not be a top priority, but does offer blind people autonomy and is useful for everyone else, too. It is even better if it has a colour that contrasts with the rest of the floor.

Examples of good practices:

✓ Install a pathway from the entrance door to the site map in the lobby (with the understanding that the map is made of ink, relief and Braille).

✓ Use the tactile paving surfaces to indicate the pedestals that have tactile resources and signs in Braille.

✓ Mark the route (in large, open spaces) to the auditorium or meeting room.

5.6. MAGNETIC OR INDUCTION LOOPS

This is a sound amplification system which connects to an audio outlet, transforms the sound into a magnetic field and sends it directly to hearing aids in the T position (which stands for ‘telecoil’). The sound not only arrives amplified but is also clear and isolated from the surrounding noise.

The internationally accepted symbol indicating the existence of magnetic loops is an ear with a T.

A magnetic loop is a technical aid that is indispensable for people who use auditory prosthetics. There are two kinds:

✓ Hearing aids

The most common ones are placed behind the ear, but there are also ones that fit inside the ear. To receive the signal correctly and enjoy better sound quality, the user has to activate the T position on the hearing aid. It should be borne in mind that hearing aids fitted inside the ear have no T position.

✓ Cochlear implant

This is a prosthetic inserted in the cochlea via surgery. It has an internal part and an external part (similar to a hearing aid). A cochlear implant already has the T position incorporated into its processor. It does not need to be activated, but the settings have to be previously determined by the audio-prosthetic specialist, and the user has to activate the right channel.

Kinds of magnetic loops:

✓ Perimeter or permanent installation

This is the kind found in a gallery or enclosed space where the perimeter has been wired for it. This is becoming increasingly common in auditoriums, meeting rooms, theatres, etc.

✓ Portable or table-top

This is appropriate for small spaces where the communication occurs in close proximity, such as reception desks, ticket counters, etc.

✓ Individual or necklace

These connect to the devices that have earphone connections, such as audio guides, radio guides, etc. They have the advantage that the user can directly control the volume they want.

5.7. SIGN LANGUAGE

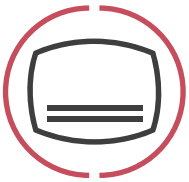
This is the native language of the deaf community who sign through a visual and gestural modality.

The following should be borne in mind:

- ✓ It is a language. It has its own grammar and dactylogical alphabet.

- ✓ Catalan sign language is used in Catalonia, while Spanish sign language is used in the rest of Spain. Each region or country has its own sign language (BSL – British sign language, ASL – American sign language, LSF - langue des signes française, etc.). ISL or international sign language is a kind of auxiliary lingua franca which shares a common base with the other languages.

- ✓ The mediation of an interpreter who translates the oral language into sign language and vice-versa is essential when communicating with deaf people who sign. The interpreter tends to wear black so that their hands can be seen more clearly, and they have to stand in a well-lit area right in front of their interlocutors.



5.8. SUBTITLES

Subtitles are an alternative system that complements oral communication.

They are essential for individuals with auditory disabilities who cannot access the voice message, but they are also quite useful for everyone, because the written support reinforces and facilitates understanding of the oral discourse. We should not forget that foreigners, for example, or people who have not fully mastered the language, also benefit greatly from subtitles.

Kinds of subtitles:

✓ Live (or simultaneous subtitles), for events, lectures, etc.[8]

El The subtitler transcribes the speaker's or lecturer's words in real time. The subtitles appear on the lower or upper part of a screen where the speaker's face can be seen as they speak. This allows for simultaneous lipreading along with the ability to see the intonation and emotion with which the speaker conveys the information. In order to lipread properly, the speakers must be told about the need for their entire face and mouth to be visible.

✓ Delayed, for audiovisuals

There are two kinds of subtitles: intralinguistic (in the same language as the original voice) and interlinguistic (the most common, which translates from another language).
Subtitles for deaf people are generally intralinguistic and also including information on important contextual sound information like noise, music, etc.

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8 The UNE 153010 standard dated May 2012, *Subtitling for deaf people and individuals with auditory impairments*, sets forth the criteria and recommendations.

5.9. TRANSCRIPTION OF AUDIO TEXTS

When an exhibition has an audio guide with exclusively sound-based information, which is therefore inaccessible to individuals with auditory impairments, one very simple way to offer everyone the same opportunities is to transcribe the contents of the guide.

A dossier with the transcription of the audio texts should be made with augmented lettering (minimum recommended is 18-point font) and include not only the corresponding numeration but also a small photograph of the piece being discussed. It should be borne in mind that this dossier – just like gallery notes – is read while standing or walking and often in dim lighting.

5.10. ACCESSIBLE MULTIMEDIA AUDIO GUIDES

The new technologies offer a range of possibilities to make the contents of a museum or exhibition accessible. Multimedia audio guide devices and mobile apps allow accessibility measures to be incorporated, such as audio navigation and audio descriptions for the blind and subtitles and sign language for the deaf.

Using these new technological resources is unquestionably a great way to bring cultural contents to all audiences, but we should not forget that personal interaction and direct experience with the work of art cannot be replaced.

5.11. ACCESSIBLE GUIDED TOURS

This is the most important resource because it involves interpersonal communication, a crucial aspect in welcoming audiences with disabilities. Offering individuals with special needs the possibility of taking adapted tours is the minimum, essential effort that must be made. An exhibition may not have any of the material resources we have discussed so far, but the institution should at least be willing to offer some kind of customised tour or activity.

Other considerations to bear in mind:

1. Can general tours be inclusive?

As the first option, we should ask whether or not the tour targeted at the general public can also include individuals with disabilities and if so, what kind of disabilities. We shall offer two examples in which this is not only feasible but also highly recommended:

- ✓ The guided tour of a sculpture exhibition in which everyone[9] is allowed to touch some of the pieces is ideal so that any blind person can individually participate in a normalised way. Sharing different ways of perceiving art is enriching because it sparks dialogue and reflection between people with and without sight.
- ✓ It should be borne in mind that a deaf person who uses oral speech can also participate in any kind of guided tour under equal conditions. However, the museum docent should be aware of this and bear it in mind to both provide a necklace loop and, if needed, to enunciate clearly while facing the patron if they lipread.

However, not all disabilities can easily be integrated into a general tour. One example is deaf people who use sign language, in which the intervention of a sign language interpreter is always essential. Another example is highly specific groups of people with cognitive disabilities which require tours that are especially tailored to the group's needs.

9 Such as the exhibition "Art, dos punts" at MACBA (18 July 2013 to 6 January 2014).

2. Designing and offering accessible tours by type of disability

Just as guided tours are scheduled for the general public, schools, families with children, etc., we should recall that certain days and times can also be scheduled for accessible tours. Another valid option, if there is no predetermined calendar, is to leave open the possibility of making an appointment for an accessible tour depending on the needs of the group requesting it.

Regardless of whether general tours can be more or less inclusive, the most common scenario is to offer adapted tours depending on the kind of disability:

- ✓ Visual (with audio descriptions and tactile elements).
- ✓ Auditory (with magnetic loops, lipreading or sign language interpreting).
- ✓ Cognitive (the adaptation for groups with mental, intellectual or psychological disabilities should be tailored to the group, usually in conjunction with a given entity and with the assistance of the monitors or caregivers).[10]

10 Examples of good practices (date of links, November 2013):

Cultural Programme for Alzheimer Sufferers at the CCCB:
http://www.cccb.org/ca/fitxa_premsa-cccb_programa_alzheimer-39790

Tours of the MNAC and the Miró Foundation by the Associació Susoespai for individuals with mental disorders:
http://www.susoespai.org/museus_i_salut_mental/

3. Determining the number of participants

If the tour is scheduled on pre-determined dates advertised in the general information – and therefore, guaranteed – there should be no minimum number of participants. If just a few sign up, it should nonetheless be held. The coherence and success of a scheduled tour cannot be measured quantitatively but qualitatively.

In terms of the maximum number of participants, a limit should be set that guarantees the quality of the tour. This may vary on a case-by-case basis, but in general terms the recommendations are:

- ✓ No more than six for blind persons and when there are tactile elements.[11]
- ✓ Up to a maximum of ten for deaf people (however, you must make sure there is a sufficient number of necklace loops in case all the participants need one).

11 The motivations spurring blind audiences to attend a guided tour have changed over time. While at first it was a group activity spearheaded by an association, probably more social than culture, more and more blind people want to sign up individually or with small groups of friends. It is better if few people participate in the tour. A small group facilitates not only tactile exploration and mobility in the gallery but also more direct and personalised contact; in short, more fluid communication.

4. Facilitating the tour conditions

In addition to having a script for accessible tours, there are several practical considerations which may seem minor yet are often decisive in ensuring a successful experience. For example:

- ✓ Loans of folding chairs[12] which can be used throughout the tour of an exhibition is a universal accessibility measure that all museums should have. Apart from their individual use by the elderly or individuals with reduced mobility, these seats are very useful for some group tours. Turning the exhibition gallery into a kind of improvised classroom for a

12 There are some lightweight folding seat models on the market designed especially for use by visitors to an exhibition hall or museum.

while is a good practice: it conveys the idea of the museum as a space of experiences and reinforces the educational facet of the show.

✓ When relief diagrams or other transportable tactile elements are used during a guided tour for the blind, it is essential to think about the best context for an effective exploration. Thus, being able to sit comfortably or having a counter where the elements to be touched can be laid out is an important aspect worth bearing in mind.

✓ On a tour adapted for deaf people, the museum docent and sign language interpreter should act in close coordination to ensure effective reception of both the oral and signed message. Some people will read the guide's lips as they speak, some will listen to their voice via magnetic loops or FM broadcasters, and others will read the interpreter's hands. Communication only takes place if each of them faces their respective interlocutors under good lighting.

✓ And finally, a small detail worth bearing in mind for working dogs is having a water bowl at the reception and offer it at the end of the tour. A disabled person who is accompanied by a dog may or may not accept the offer, but they will surely appreciate the gesture.

5.12. ADAPTED ACTIVITIES

All exhibitions tend to have a programme of parallel activities: lectures, debates, workshops, concerts, plays, etc. Beyond planning the usual alternative communication systems which are recommended for any public event,[13] we can also design some activities that subvert – why not? – the very concepts of disability or integration. In other words, if from the start we plan an activity based on the special needs of some disabled people, not only will we make it possible for other participants to join in (in theory, abled participants), but we will have performed an act of awareness-raising and therefore taken a step towards normalisation.

Examples of interesting practices:

- ✓ When the lecturers express themselves in sign language and an interpreter is needed to translate it into the oral language. If the speaker is a deaf person who communicates orally, a screen will be needed with subtitles to receive participants' questions and the speakers' other contributions.

- ✓ When a poetry reading is done in the dark by blind poets who read using the Braille system.

- ✓ When a multi-sensory activity based on the senses of touch, taste or smell is offered.[14]

- ✓ When the key elements (synopsis, context, set, etc.) are presented at an open microphone just before a show begins so that blind people can situate themselves and follow the performance under equal conditions.[15]

In summary, an effort is needed to explore new possibilities and weigh their feasibility and suitability in each case.

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13 See the publication *Fem actes públics per a tothom. Síntesi de la mesura de Govern.* "*Criteris d'accessibilitat en l'organització d'actes públics municipals*", which can be downloaded from the website of Barcelona Accessible: http://accessible.si.edu/pdf/Smithsonian%20Guidelines%20for%20accessible%20design.pdf

14 One good practice is offering masks to seeing patrons participating in an integrative activity with blind people.

15 In each case, it is important to weigh the suitability of this format depending on the kind of show. It is true that in many cases a live audio description service will be needed for blind persons during the performance (in addition to the programme in Braille, tactile recognition of the stage elements before or after the show, etc.). However, in other cases, the formula can be very successful and is always well received by everyone (and probably no printed programme would be needed).

6. TRAINING STAFF THAT DEALS WITH THE PUBLIC

The staff at a museum or exhibition – especially those that deal with the public – have to be very familiar with the accessibility resources that are available or not. They have to know what they are, what their purpose is and how they are used. There is nothing more disappointing to a person with a disability who visits a museum or exhibition than finding out that there is a certain resource but no one knows anything about it. It is better not to create expectations if they cannot be properly met when the time comes.

On the other hand, relating to and interacting with individuals with a high level of visual, auditory or cognitive disability may generate uncomfortable situations for people who are not used to doing so. The tendency is often towards over-protection. Even though erroneous attitudes and behaviours may be based on good intentions, they are the outcome of ignorance. To avoid them, several guidelines should be borne in mind.

Recommendations on dealing with individuals with disabilities:

1. When interacting with a blind person

✓ First of all, you should identify yourself and offer to help them. Do not be offended if they reject your offer of assistance. Helping means providing what the other person needs or wants; it does not mean doing what they can do for themselves.

✓ Don’t touch or grab the person without speaking to them first.

✓ Speak to the person in a normal tone of voice. The majority of blind people have perfect hearing. When there are more people in the conversation, you can lightly touch their arm to emphasise the fact that you are speaking to them.

✓ It is a good idea to look directly at the blind person and speak directly to them, not to their companion(s).

✓ Body language (head or hand movements, facial

expressions, gestures) does not have the same meaning as it does with seeing people.

✓ Do not avoid words like see, look, sight, blind, etc. They can be used naturally because they are part of their usual speech.

✓ When accompanying a blind person, offer them your arm, either right or left. They will usually hold onto you right above your elbow and follow half a step behind you.

✓ When sitting down, place their hand on the back of the chair and briefly describe the placement of the chair (at the end of a long table, for example.

✓ Verbally say if there are stairs going up or down, turns to the right or left or any other obstacles. It may not always be necessary (they'll figure this out because they are walking right behind you), but it's always a good idea.

✓ Give directions clearly and precisely (for example, 'three metres ahead'). Words or expressions like 'over there' or 'a bit ahead of us' are not useful.

✓ Leave doors totally closed or open, and remove chairs and place them under the table.

✓ If you separate from the blind person or have to leave them momentarily, let them know in advance. It's better to give them a point of reference (the wall, a bench, etc.).

✓ It is unnecessary to be friendly to a seeing-eye dog. They should not be distracted: they are working. It should be understood that the dog is an aid for the blind person and only they should interact with the animal. When walking, place yourself on the opposite side as the seeing-eye dog.

✓ Finally, if you have any doubts or are not sure what to do, your best bet is to naturally ask the person whom you are helping.

When interacting with a person with an intellectual or cognitive disability:

- ✓ Remember that your interlocutor may have some difficulties expressing themselves orally, but this doesn't mean they are incapable of communicating. They may not speak fluently, but they are sure to have things to say.
- ✓ Words become more meaningful if they are accompanied by body language: gestures, smiles, proximity, eye contact, tone of voice, etc., allow an atmosphere of security and calm to be created.
- ✓ Use short, clear, simple phrases. Avoid abstract language and technical jargon.
- ✓ Be patient. The person may have difficulty focusing their attention and may show interest in objects that other people don't even notice.
- ✓ Don't put words into their mouth; respect their pace and their silences.
- ✓ Don't feel uncomfortable with behaviours that may seem strange, like unusual vocalisations or gestures.
- ✓ Comparisons, examples or real-life references help communication greatly.
- ✓ Treat the person according to their chronological age, and never treat them like a child.
- ✓ Remember that some individuals with intellectual disabilities or developmental disorders may be very reactive to physical contact.

When interacting with a deaf person:[16]

✓ Remember that deafness is a disability that cannot be seen at first glance, and therefore it is not easy to identify when a person has auditory problems.

✓ Before beginning to speak to them, you can warn them with a light touch on their arm or back, or by making a discreet signal.

✓ Wait until they are looking at you before starting to talk.

✓ Face them as you speak and make sure that your face is well lit, never with the light behind you.

✓ Speak naturally, articulating clearly but without exaggerating, at a calm pace – neither very quickly nor too slowly.

✓ Speak with your usual voice but without raising your voice, in simple yet complete sentences, using familiar words – avoid slang and jargon.

✓ Repeat the message if your interlocutor did not understand it. You can most likely find another way of saying it.

✓ Do not act like you understood the deaf person if you didn't.

✓ Your facial expressions help you communicate with a deaf person. And if that is not enough, you can always write it down.

Finally, do not forget the golden rule:

✓ Act natural.
Above and beyond the disability there is a person: notice the person, not their disability.

16 These guidelines are applicable when dealing both with oral deaf people who communicate orally and with deaf people who sign via an interpreter.

7. ENSURING THAT THE WEBSITE IS ACCESSIBLE

An accessible website makes the following possible:

- ✓ Alternative browsing using the keyboard (there are many pathologies that lead the hands to shake and make it difficult to use a mouse).
- ✓ Use a screen reader (a voice synthesiser which blind people use).
- ✓ Being able to read the transcription of a sound file (essential for deaf people and useful for everyone).

1. WAI guidelines

The WAI[17] guidelines, which are primarily geared towards programmers and content managers, establish three levels of accessibility: A, AA and AAA. The optimal one required by the legal regulations in force[18] is AA.

These guidelines also contain a series of verification points which help detect potential errors. Each verification point is assigned to one of three priority levels established by the guidelines.

- ✓ Priority 1: If the web developers do not meet these points, this will prevent certain user groups from accessing the information on the website.
- ✓ Priority 2: If these points are not met, this will severely hinder access to the information by certain user groups.
- ✓ Priority3: If these points are not met, some users will experience certain difficulties accessing the information.

17 WAI (Web Accessibility Initiative) is the commission of the W3C (World Wide Web Consortium) which sets the guidelines so that everyone can access websites without distinctions or barriers.

18 Law 56/2007, dated 28 December 2007, on measures to promote the Information Society.

Depending on these verification points, levels of conformity are established:

(**A**) Level of conformity A: all the priority 1 verification points are met.

(**AA**) Level of conformity AA: all the priority 1 and 2 verification points are met.

(**AAA**) Level of conformity AAA: all the priority 1, 2 and 3 verification points are met.

2. Some common website accessibility problems

- ✓ Images without text alternatives
- ✓ Links without a meaningful text
- ✓ Lack of association of labels in the fields found on forms
- ✓ Data tables without header information on rows or columns
- ✓ Improper use of structural elements on the website

3. Advantages of website accessibility

- ✓ It is not incompatible with good graphic design.
- ✓ It offers the flexibility needed for the information to be accessible in different situations and especially with different devices (mobile phones, tablets, etc.).
- ✓ It provides methods that allow websites to be transformed into pages that are easy, intelligible and useful for everyone.
- ✓ It improves the website's position in search engines, because the algorithms that order websites *read* the pages similar to the way blind people do. Thus, any inaccessible content will not be read by the search engines and will therefore lower the page's position.

8. COMMUNICATING AND DISSEMINATING ACCESSIBILITY RESOURCES

Guaranteeing the accessibility of a website at AA level is a necessary measure, yet it's not enough to make information available to users. A section on the website menu should also be created with information on the resources and facilities available for disabled audiences in a museum or exhibition. One thing is a section on the accessibility of the website, but another quite different thing is the section on the accessibility of the facilities, tours, activities, etc. The former reports on how the website is programmed, while the latter is the information on the museum's accessibility resources.

Recommendations to bear in mind:

- ✓ Set aside a section on the website with information on accessibility and outline all the facilities available for each kind of disability.
- ✓ Mention the adaptations and accessibility resources in other more general information media as well (brochures, handbills, posters, etc.).
- ✓ Share it with any entities and associations in the sector that might be interested in it.
- ✓ Spread the information through the social media and specialised channels.[19]
- ✓ When a communiqué is issued or any information on accessibility is published, provide the contact information of the person in charge.[20]
- ✓ If a PDF is sent or attached, this document must be accessible (it should not be scanned as an image because blind people will not be able to access it).
- ✓ Using pictograms helps with quick viewing.

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19 Among others, Accessible Barcelona http://w110.bcn.cat/portal/site/BarcelonaAccessible and the socio-educational programme targeted at the social sector and promoted by numerous cultural facilities in Barcelona http://www.apropacultura.cat/exposicions.aspx.

20 For disabled audiences, who generally need highly personalised attention, it is important to be able to ask for a person by name when requesting information or making a reservation, for example.

Guidelines for making accessible PDFs

Remember that a blind person who browses with a screen reader, cannot get an overview of the document, the way a seeing person can, but instead has to read it sequentially, in the order established previously which the screen reader interprets.

Example: If a PDF is a two- or three- page brochure and the reading order has not been properly marked, the screen reader will read the first line all together; that is, the first line from the first column and the first line from the second, etc., which will make no sense.

PDFs usually come from two main sources:

A scanned document. If a document is scanned, it should first be run through the OCR programme (Optical Character Recogniser). If not, the scanned document will be an image which the screen reader does not recognise.

For a Word document or a file that has been already processed that is converted into PDF, the following guidelines should be taken into account:

- ✓ Use paragraph styles; that is header 1, 2, text body, etc., when formatting the text.
- ✓ If you want columns, they have to be made using the Word columns tool but never with tables or the tabulator.
- ✓ To convert a Word document into PDF, it is best to use Adobe PDF Maker (check the conversion properties in the menu “Adobe PDF > Change Conversion Settings”).
- ✓ Specify the language of the document.
- ✓ Add markers (markers are a kind of index which allow for browsing within the document).
- ✓ Conduct an accessibility test (before finishing, it is a good idea to run the Adobe accessibility validator “Advanced > Accessibility > Full Check” and check that it doesn’t find any errors).

ACCESSIBILITY PICTOGRAMS

Symbol of the motor or physical disability

Symbol of the motor or physical disability (when help is needed)

Symbol of the visual disability

There are elements in Braille

There are elements with augmented lettering or optical aids

There are tactile elements

There are audio descriptions

There are subtitles

ACCESSIBILITY PICTOGRAMS

Symbol of auditory disability

There are magnetic loops

There is a sign language interpretation service

Adaptation to sign language (Catalan and Spanish sign language) for the website and multimedia resources

Symbol of cognitive, intellectual or psychological disability

Assistance dogs are allowed

Easy reading material (logo conferred by the ALF)

9. LISTENING TO USERS' OPINIONS

It is important to gather users' opinions on the accessibility actions that should be or have been done to eliminate communication barriers in an exhibition.

In some cases, this should be done in the preparatory phase; that is, before or after a given resource is produced. For example, testing the script of an accessible audio guide with some users before recording it, or testing how a device works before deciding which one will be chosen, can not only provide us with an extremely useful proven opinion but also allow us to see some important aspects or details which we had failed to take into account. Checking in advance and asking for the assistance of someone can be done individually (if you know that person has sound judgement and knowledge) or through a representative association or entity.

Another thing is asking for opinions to get feedback on what has already been done. Questions like "Did you enjoy your tour?", "What would you improve?" and "What would you change?" provide extremely useful information which helps monitor but more importantly correct and improve services. This evaluation after the fact should be done individually with all visitors with disabilities. Everyone has something to say, and it's worth listening to them.

PROPOSED QUESTIONNAIRE OR EVALUATION SHEET[21]

Date of the visit

With whom did you come?

☐ Individually Number of people (including yourself)

☐ In a group Name of the group (entity, association, etc.)

Where did you find information before coming?

☐ On the website

By other means (which ones?)

Any comments or suggestions for improvement?

If you have used the accessibility services or resources, how would you rate them?

	Excellent	Good	Acceptable	Unacceptable
Adapted tour				
Audio guide				
Magnetic loops				
Other				

Any comments or suggestions for improvement?

Check the boxes below if you would like to receive information on the upcoming accessible activities for individuals with disabilities:

Visual ☐ Auditory ☐ Cognitive ☐

Name [22]

Email

21 Keep the number of questions to a minimum and in each case determine the best format or way to gather comments and suggestions for improvement.

22 Obviously, it is essential to guarantee the protection of personal information.

> Communicative accessibility of cultural manifestations in general and exhibitions in particular is still a new topic that has barely started to be implemented here. Some headway has been made and there have been successful experiences, but a lot still remains to be done.

Accessibility should be viewed as a long-distance race with no going back. Once a resource has been implemented or a pilot experiment conducted, continuity is essential. Occasional, isolated actions do not generate trust in users when they see that they do not continue over time. It is extremely important to do so regularly and consistently. For example, if a museum decides to offer guided tours in sign language in one of its temporary exhibitions, it is worth continuing this initiative. From then on, any future exhibitions should also offer this service. Even if they are not very popular at first, persistence always ends up bringing coherence and positive results.

This is a new audience, one that is seldom integrated into cultural life and somewhat unaccustomed to discovering the personal growth potential of art and knowledge. Cultural managers are also facing new challenges that have been unexplored until relatively recently. For all of these reasons, it is important to be bold when experimenting, but also to be willing to rectify and change in order to improve.

A. Glossary

AVOID WRONG EXPRESSIONS

YES	NO
✓ Persons/individuals with disability (the following expressions are also used: persons/ individuals with functional diversity, differently-abled persons/individuals and persons/individuals with special needs)	✕ Invalid ✕ Handicapped ✕ Deficient ✕ Diminished
✓ Accessible entrance	✕ Handicap ramp
✓ Adapted access	✕ Handicap access
✓ Adapted restrooms	✕ Handicap restroom
✓ Deaf person or person/ individual with auditory disability	✕ Deaf-mute
✓ Sign language	✕ Sign language
✓ Transcription into Braille	✕ Translation into Braille

Legibility: The form and the graphic design (letter body, font, contrast, alignment) which make a text easier and more pleasant to read.

Readability: The content of the message (writing tone, syntax, terminology, length of text blocks and sentences) which makes a text clear and intelligible.

Assistance dog: This is a dog which has been trained, examined and accredited to assist an individual with a disability.
In Catalonia, the law protects and guarantees the access of assistance dogs in all public places

There are four kinds of assistance dogs:

- ✓ Seeing-eye dog: trained to guide a blind person; wears a harness.
- ✓ Service dog: trained to assist individuals with a physical disability.
- ✓ Hearing dog: trained to warn a deaf person when there is a sound and shows them where it is coming from.
- ✓ Assistance dog for epileptics, diabetics, etc.: trained to warn the owner in advance if they are about to suffer from an epileptic attack or another medical condition, such as a hypoglycaemic attack.

Audio descriptions (AD): A communication support service targeted at blind persons which consists of translating visual images into the verbal language.

Braille: A tactile reading and writing code or system based on combinations of six dots laid out in a two-column and three-row matrix. Braille characters are always the same size and therefore the concept of “letter size” does not exist. The act of putting a printed text in the Braille system is not translation but transcription.

Typhlotechnology (from the Greek 'typhlos', blind): A set of knowledge, techniques and devices which individuals with visual disabilities use in order to use standard technology. It allows them to adapt and access the information and communication technologies.

Braille devices: These are devices which allow the user to read the information generated in Braille code when connected to a computer and using the right application. The most commonly used one is called "Braille Notetaker".

Screen readers: These are programmes that send the information on the computer to a Braille notetaker or voice synthesiser. This allows blind people to use the majority of functionalities via the keyboard, without the need to use the mouse. There are several different screen readers on the market, although the most common one is JAWS.

Tactile paving surfaces: This is a textured paving surface used to convey information to individuals with visual disabilities on dangers (usually with buttons) or routes (usually with grooved or rough strips).

Magnetic loops or induction loops: This is a technical aid for users of auditory prosthetics. It is a sound amplification system which connects to an audio outlet and transforms the signal into a magnetic field which is sent directly to the hearing aids with the T position. The sound arrives amplified and isolated from environmental noise.

WAI: Web Accessibility Initiative. A working group of the W3C which specialises in a variety of matters related to web accessibility.

Website at AA level: The optimal accessibility level which meets the criteria of level AA of the WCAG 2.0 (version 2.0 of the WCAG-Web Content Accessibility Guidelines).

B. Documentation and bibliography

Documentation (links)[23]

Design of accessible exhibitions

Smithsonian Guidelines for Accessible Exhibition Design.
http://accessible.si.edu/pdf/Smithsonian%20Guidelines%20for%20accessible%20design.pdf

Website accessibility

W3C - World Wide Web Consortium. Internet Regulatory Body.
http://www.w3c.es/

WAI - Web Accessibility Initiative. Body regulating web accessibility within the W3C.
http://www.w3c.es/Traducciones/es/WAI/intro/accessibility

WCAG 1.0 - Web accessibility guidelines 1.0
Web accessibility guidelines from the version created on 5 May 1999.
http://www.w3.org/TR/WAI-WEBCONTENT/

WCAG 2.0 – Web accessibility guidelines 2.0
Web accessibility guidelines, updated on 19 November 2004.
http://www.w3.org/TR/WCAG20/

Web accessibility guidelines
(Generalitat de Catalunya, February 2007).
http://web.gencat.cat/ca/menu-ajuda/ajuda/accessibilitat/

Guide to accessible digital content (Lleida, June 2010).
http://www.udl.cat/export/sites/universitat-lleida/ca/serveis/seu/.galleries/docs/UdLxtothom/documents/GuiesContingutDigitalAccessible/Llibre_Guia_de_contingut_digital_accessible.pdf

23 The links were valid on November 2013.

Accessible apps

Gil González, Santiago. *Cómo hacer "Apps" accesibles*. Published by Ceapat-Imserso. Madrid, February 2013.

Audio descriptions and subtitles

Recommendations of the CESYA (Spanish Centre of Subtitling and Audio Descriptions).
http://www.cesya.es/

Subtitle criteria for individuals with auditory disabilities. Source: Subtil.
http://subtil.cat/wp-content/uploads/2013/05/Criteris-subtitulaci%C3%B3-persones-sordes_Subtil.pdf

Museums and accessibility in art and culture

MoMA | Museum of Modern Art
https://www.moma.org/learn/disabilities/index

Tate
http://www.tate.org.uk/visit/tate-modern/access-and-facilities/disabled-visitors

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http://www.artbeyondsight.org/

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Bollea, Giovanni. L'arte a portata di mano. Verso una pedagogia di accesso ai Beni Culturali senza barriere. Museo Tattile Statale Omero. Armando Editore. Ancona, 2006.

Capdevila i Planta, Marta. Sords profunds, però hi sentim i parlem! Ajuntament de Barcelona. Barcelona, 2008.

Gratacós Masanella, Rosa. Otras Miradas. Arte y ciegos: tan lejos, tan cerca. Ediciones Octaedro. Barcelona, 2006.

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C. Legal framework

Regulations in Catalonia

Law 13/2014, dated 30 October 2014 on accessibility.

Law 20/1991, dated 25 November 1991, on promoting accessibility and eliminating architectural barriers.

Decree 135/1995, dated 24 March 1995, on implementation of Law 20/1991, dated 25 November 1991, on promoting accessibility and eliminating architectural barriers, and approving the Accessibility Code.

Law 19/2009, dated 26 November 2009, on access by individuals accompanied by an assistance dog.

Law 17/2010, dated 3 June 2010, on Catalan sign language. Approved by the plenary of the Parliament of Catalonia. (Official Journal of the Government of Catalonia no. 5647.

Resolution 749/VIII on measures to guarantee the learning, education, accessibility and resources in oral mode for deaf and deaf-and-blind individuals who communicate orally. Approved by the plenary of the Parliament of Catalonia on 15 July 2010.

Spanish regulations

Royal Legislative Decree 1/2013, dated 29 November 2013, approving the General Law on the Rights of Individuals with Disabilities and their Social Inclusion.

Royal Decree 505/2007, dated 20 April 2007, which approves the basic conditions of accessibility and non-discrimination of individuals with disabilities to access and use urbanised and built public spaces.

Law 27/2007, dated 23 October 2007, which recognises the Spanish sign languages and regulates the means of support for the oral communication of individuals who are deaf, have auditory disabilities or are deaf and blind. (Official Journal of the Government of Spain no. 255).

Law 56/2007, dated 28 December 2007 on measures to promote the Information Society.

UNE standards

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UNE standard 170001-1: 2007 Universal Accessibility. DALCO Criteria (Ambulation, Apprehension, Location and Communication) to facility accessibility to the environment.

UNE standard 170001-2: 2007 Accessibility management system.

UNE standard 170002: 2009 Accessibility requirements for signage.

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CREDITS

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