

# D2.1

## End-User Specification

Version

V1.0

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## List of Acronyms and Abbreviations

Acronym/ Abbreviation	
AAL	Active & Assisted Living
CA	Consortium Agreement
CMU	Central Management Unit
DoW	Document of Work
LoI	Letter of Intent
KPI	Key Performance Indicators
SDM	Service Delivery Model
WP	Work package



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## Executive Summary

The aim of this deliverable is to report the findings of the co-creation workshops (T2.1) organised in Austria, Italy, Slovenia, Switzerland and Portugal, in order to involve the end-users and the application partners in the design of the Service Delivery Models (SDMs).

BeauCoup requires the continuous involvement of the target stakeholders by employing co-design methods, as a pillar of the user-centred design approach. This participatory approach allows us to design the SDMs (including the technologies and the cultural contents) based on the needs and preferences of the intended users.

This deliverable represents a basis for the iterative development of the BeauCoup solutions. It will be used to inform the Task 2.2 for the design of the Service Delivery Models in User Ecosystems, and the Task 2.3 for the System Architecture Specification. It will provide the insights to design the cultural contents in WP3.



## Relation to other deliverables and tasks in BeauCoup

*Table 1: The work and the document build on results from the following deliverable*

No.	Title	Information on which to build
T2.4	Ethics Management	The informed consent form used for the co-creation workshops, and the guidelines to manage privacy and security issues are based on T2.4.

*Table 2: The results of this work will be incorporated into the following work and deliverables*

No.	Title	Basis for
D2.2	Service Design Specification	The user requirements and envisioning scenarios will inform the design of the SDMs in D2.2
D2.3	System Architecture and Technical Requirements	The user requirements and envisioning scenarios will inform the definition of the technical requirements and the design of the system architecture.
T5.2	Dissemination	The outputs of the workshops will be used for the scientific dissemination (e.g., scientific journal paper, presentations at scientific conferences).



## 1. About this document

This deliverable is a public report that lays the groundwork for the design of the BeauCoup solutions, based on the collaboration with the target stakeholders (e.g., museum staff, educators, seniors, caregivers). The engagement of the stakeholders in co-design is pivotal to develop successful solutions in service design projects (Steen et al., 2011). Moving from user-centred design to co-design, the target users are no longer passive objects of study but valuable source of information. They are involved as design partners, “experts of their experience”, who play an active role in knowledge development, idea generation and in the decision making about the project solutions (Sanders & Stappers, 2008).

In such a co-design approach, the methodological framework of BeauCoup relies on the methodology of Design Thinking to alternate divergent thinking and convergent thinking (Brown & Katz, 2011), within an iterative design process. The co-creation workshops organised in BeauCoup adopted a divergent thinking to engage the participants in the generation of creative ideas to develop innovative solutions. The focus is intentionally wide, in order to collect multiple inputs, explore diverse alternatives and points of view. In the following project phase (T2.2, T2.3), the attitude will shift from divergent thinking to convergent thinking, to select the most relevant alternatives and deepen the design of the project solutions.

This deliverable describes the overall co-design framework of BeauCoup (see section 2), and it reports results of the co-creation workshops organised by the project partners in four countries: Austria, Italy, Slovenia, Switzerland and Portugal. A total of ten workshops were carried out: four workshops involved the application partners (museum staff and key-informants as experts of cultural heritage and accessibility) (see section 3); six workshops involved older people, some of them with onset or age-related disabilities, and their caregivers (see section 4). Starting from a common co-creation plan and toolkit (see next section), each workshop has been adjusted according to the characteristics of the participants.

This document is structured to provide an overview on the co-creation process, to present the activities and outputs of the different workshops, and then to discuss the results as insights to guide the design of the Service Delivery Models (see section 5).

## 2. Co-creation plan and toolkit

The co-creation plan and toolkit were designed according to desk research that investigated some best practices of co-design involving people with disabilities.

The scientific literature includes diverse studies, each of them with specific methodological framework and tools tailored to the project’s objectives and the characteristics of the co-design participants. To enable the participants to play an active role (Damoradan, 1996), the co-design practice usually combines reflective and hands-on activities: e.g., group discussions and focus groups are intended to engage the participants in knowledge sharing, collective reflections and mutual learning; card sorting, the creation of visual maps, the demonstration of prototypes are experiential activities that enable the participants to combine, manipulate and create objects and ideas.



Especially when the co-design is performed with people with disability, the activities and tools should be tailored to the needs and preferences of the participants, to enable them to contribute to the design process.

Moreover, there is the need to avoid stereotypes and ageism during the co-design activities (Comincioli et al., 2022). Indeed, ageism and stereotypes can influence the design process (e.g., the conceptualisation of the design solution) and the way the designers interact with the co-design participants (e.g., possible use of discriminatory language, biases in the interpretation of the participants' ideas). To prevent this, the guidelines developed by the ARCHES<sup>1</sup> project are the main reference to consider (Garcia Carrizosa & Rix, 2016).

The BeauCoup consortium defined a common methodological framework for the co-creation process. The common framework includes the plan and toolkit for the workshop with the application partners (see section 2.1), as well as the plan and toolkit for the workshop with the older people and their caregivers (see section 2.2). The framework is intended to be flexible in order to accommodate diverse participants' needs, the time available and possible practical issues.

The co-creation framework requires to involve the application partners first, and then the older people. The initial design proposal of BeauCoup is further elaborated in collaboration with the application partners, who will provide the contents and integrate the technologies of BeauCoup in their businesses. Then, the proposed solutions are questioned and improved in collaboration with the older people, who will be the end-users of the new SDMs. In this way, the project solutions are incrementally designed and challenged with the target stakeholders, to finally reach a balance between the goals of the application partners, and the needs, preferences and wishes of the older people.

## 2.1 Plan and toolkit for the application partners

The objectives of the workshops with the application partners are: (1) to select examples of cultural contents and artefacts to promote beyond museums' walls, and (2) to collect ideas to design the SDMs based on the technologies provided by the project partners.

The co-creation plan and toolkit included the following sequence of activities and materials.

### 1) Photo safari

This is a preliminary activity that the participants perform by themselves in the museum before the actual workshop starts. The participants are invited to visit the museum and select a maximum of 5 cultural contents and/or artefacts that they would like to promote outside the museum, e.g., to share with people who cannot visit the museum. The participants take photos of the selected contents/artefacts, and the photos are sent to the partner's team via WhatsApp or other means. The output of this activity is a collection of contents/artefacts to work on during the workshop.

### 2) Presentation of the project

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<sup>1</sup> The guidelines developed by the ARCHES project are included in an open access document that can be used for similar participatory research projects in the cultural field. The document is available at: <https://www.arches-project.eu/wp-content/uploads/2019/09/WaysOfWorking.pdf> [Accessed on the 25th of August 2022]



At the beginning of the workshop, the partner's team presents the project objectives, briefly describes the three Service Delivery Models and introduces the objectives and activities of the workshop. The SDMs are presented as abstract metaphors in order to allow the participants to define how the SDMs will work and the tools they can include. The output of this activity is the collection of possible comments by the participants about the project vision and goals.

### **3) Discussion about the Photo safari**

The items selected by the participants during the Photo safari are presented and discussed to understand the criteria used by the participants to select specific contents/artefacts, and to identify what to bring beyond museum's walls. When presenting the selected contents/artefacts, the participants are invited to define what can be delivered to the users: e.g., the original artefact, a representation of the artefact as a replica, photograph or 3D model, the description and history of the artefact, the imaginary related to the artefact, the stories narrated by persons in the community, traditions and know-how, new pieces of art or performances by artists inspired by the artwork. The outputs of this activity include examples of museum collections, and ideas to exploit them.

### **4) Demonstration and evaluation of the technologies**

Once we have defined what to bring outside the museum through the discussion of the Photo safari, the participants are engaged in the exploration of ways to do it using the technologies provide by the BeauCoup partners. The technologies are experimented by the participants with some demos (Figure 1), to understand how the technologies work and the kinds of content they can deliver. The participants try out the technologies, individually or in small groups. To collect the opinions of the participants about the proposed technologies, we use sticky notes and posters to understand what the participants like, dislike and wish (Figure 2).

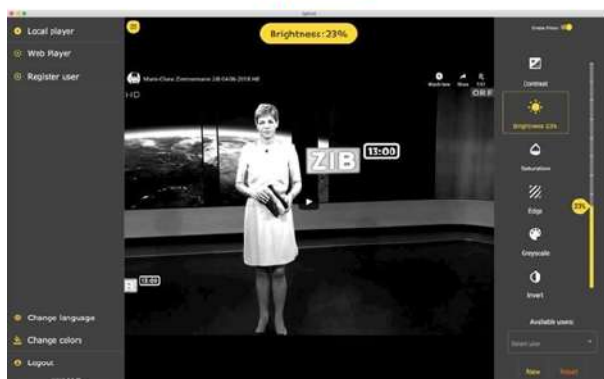
These two sessions (the demonstration and the evaluation of the technologies) can be combined or can be performed in two moments: in this latter case, the demonstration of the technologies can be performed after the discussion of the Photo safari, to provide the participants with some inspirations for the idea generation; while the evaluation of the technologies can be postponed to the end of the workshop, in order to relate the assessment with the ideas generated in the previous activities.

Regarding the technologies, for the workshops organised in Italy and Slovenia, the Tactile Multimedia Guide was not available, and it was replaced with a relief and a video to show how the system works. The output of this activity is a collection of ideas and suggestions to improve the technologies for a better user experience.





### OptiVid



The software allows visually impaired users to enhance digital video content for consumption in real-time based on their individual needs.

For example, edge enhancement algorithms are applied to improve perception of details, and image manipulation algorithms are applied to increase contrast and saturation.

For demonstration purpose, the software is used to show a video selected by each team

### Feelif tablet



With our technology, we can transfer any picture or object into an interactive digital picture to explore. By touching the Feelif picture on the screen with one finger, the user gets multiple feedbacks in the shape of different vibrations, voice descriptions and realistic sounds. On the screen is situated a transparent relief grid which helps the blind user to orient on the flat screen, so the user can also discover the shape and the size of the object he is touching. Double-tap on the object of observation leads to additional information about the object. It is also possible to use a pinch gesture to Zoom in.

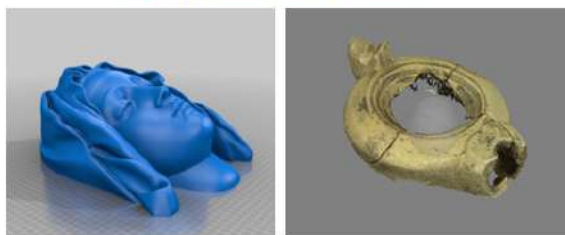
### Tactile Multimedia Guide



The Tactile Multimedia Guide combines 3D models you can touch and feel with interactive multimedia content that reacts to your touch, like sounds, descriptions, projections, animations, videos and text. It is intended as a tool that is accessible and interesting for everyone.

The system includes a bas-reliefs on which a digital image of the painting is projected, and a screen with the multimedia contents.

### 3D printed replica



With the 3D scanning and modelling, you can create a digital model of the sculpture, or of a single detail of the sculpture. The digital model is printed to have a physical object, a replica of the original sculpture in different sizes. The replica can be made of different materials and colours, ranging from simple and cheap material as the Polylactic acid, to smooth material like the resin, to metal alloys.

### Signing Avatar



SignTime develops video of signing avatar to provide information about the artworks.

Sign Time's new LookApp technology helps deaf people to read texts. LookApp links texts to a sign language dictionary. Deaf persons receive explanation or description of the term in sign language. By mouseover on the term, a window opens and a sign language video is played.

Figure 1: list of technologies to demonstrate during the workshops




 <b>I like</b>	 <b>I dislike</b>	 <b>I wish</b>
3D replica of artworks	3D replica of artworks	3D replica of artworks
<p>If you prefer, you can describe what you wish by recording a voice message and sending it to the team via WhatsApp</p>		

Figure 2: Posters "I like", "I dislike", "I wish" for a specific technology (e.g., 3D printed replicas)

## 5) Collage

Starting from the photos of contents/artefacts, this activity is a mix of card sorting and brainstorming to generate creative ideas, using some cards as inspiration. The goal is to identify the SDMs, the modes of interaction and the technologies which are more suitable to deliver specific kinds of content/artefact. To this end, the participants are invited to combine the photos of contents/artefacts





with one or more cards representing the five senses and the technologies (Figure 3), in order to imagine a way to experience the contents/artefacts, considering different needs and abilities of the end-users. Each collage is then placed in one of the SDMs (Figure 4).

The output of this activity is a set of ideas to identify the proper ways to promote the cultural heritage through multisensory, inclusive and engaging experiences.



Figure 3: Examples of cards of the five senses (upper) and cards of the technologies (bottom)



Figure 4: Labels representing the SDMs, with the Italian translation




## 6) Envisioning scenarios

During this activity, the participants are invited to select and detail the ideas generated during the activity “Collage” in order to create some envisioning scenarios. The scenario-based design is a widely used technique to create a narrative description of the envisioned use of the future solutions (Rosson & Carroll, 2009). By creating the envisioning scenario, the participants specify their ideas by imagining the future experience of use. To this end, the participants all together, or in small groups, are invited to define the following elements of the scenario (Figure 5): WHO are the actors involved in the



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experience, their roles and characteristics? WHERE does the experience take place? WHICH CONTENTS can be delivered? WHICH TECHNOLOGIES can be used? What happens during the experience? The output of this activity is a set of envisioning scenarios for the three SDMs, including ideas about the contexts in which the experience can take place, the actors to involve, the most suitable tools to enable the experience.

<div style="text-align: center;">  <h2 style="margin: 0;">WHO</h2> <p style="margin: 0;">Who are the actors involved in the experience, their roles and characteristics?</p> <hr/><hr/><hr/><hr/><hr/><hr/> </div>	<div style="text-align: center;">  <h2 style="margin: 0;">WHICH TECHNOLOGIES</h2> <p style="margin: 0;">What are the most suitable technologies in this situation?</p> <hr/><hr/><hr/><hr/><hr/><hr/> </div>
<div style="text-align: center;">  <h2 style="margin: 0;">WHICH CONTENTS</h2> <p style="margin: 0;">What are the cultural contents, artworks, stories, songs, traditions etc.?</p> <hr/><hr/><hr/><hr/><hr/><hr/> </div>	<div style="text-align: center;">  <h2 style="margin: 0;">WHERE</h2> <p style="margin: 0;">Where does the experience take place?</p> <hr/><hr/><hr/><hr/><hr/><hr/> </div>

### What happens during the experience?

Tell the story

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If you prefer, you can tell the story by recording a voice message and sending it to the team via WhatsApp



If you prefer, here you can draw

Figure 5: scenario cards

## 7) Closing and questionnaire

To conclude the workshop, the team briefly summarise the outputs and the participants are free to share their reflections.

Finally, the participants are invited to complete a brief questionnaire to evaluate the workshop activities (see Annex 1).

## 2.2 Plan and toolkit for the older people

The objectives of the workshop with the older people are to discuss the ideas developed in collaboration with the application partners, and to generate new ideas for the design the multisensory cultural experience.

The workshop with the older people builds on the outputs produced during the workshop with the application partners, in order to collect feedback and new insights.

The results of the two kinds of workshop are then integrated to guide the design of the project solutions (see section 5).

The co-creation plan and toolkit included the following sequence of activities and materials.

### **1) Presentation of the project**

At the beginning of the workshop, the partner's team presents the project objectives, briefly describes the three Service Delivery Models and introduces the objectives and activities of the workshop. The output of this activity is the collection of possible comments by the participants about the project vision and goals, based on the benefit that the project can offer to them.

### **2) Exploration of the technologies**

As for the workshop with the application partners, the technologies provided by BeauCoup partners (Figure 1) are explored by the participants to understand how the technologies work and the kinds of content they can deliver. Based on the characteristics of the participants, the team may need to select only some technologies to demonstrate. To collect the opinions of the participants, we use sticky notes and posters to understand what the participants like, dislike and wish (Figure 2).

The output of this activity is a collection of ideas and suggestions to improve the technologies for a better user experience, to be combined with the comments provided by the application partners.

### **3) Discussion of the scenarios**

This activity aims to present and discuss the scenarios created by the application partners during the previous workshop. The guiding questions for this activity are the following.

- Are the scenarios appropriate to the needs and preferences of the participants?
- Would the participants like to experience the scenarios in real life?
- Are the scenarios useful to break the barriers and make the cultural heritage more accessible and inclusive?

The output of this activity includes participants' feedback and new ideas to improve the scenarios. Indeed, the project solutions should be a "meeting point" between the goals of the application partners, and the needs, preferences and wants of the older people. Thus, the older participants are involved to debate and possibly improve the ideas proposed in collaboration with the application partners.

### **4) Design of the multisensory experience**

The starting point is the scenarios created by the application partners in the previous workshop. The reason for adopting this approach is to avoid exposing older people to abstract thinking which is usually frustrating and difficult to carry out for them. Scenarios allow to set the scene where participants can more easily engage and contribute to the proposed activities.

The main goal of this activity is to design the multisensory experience related to the cultural heritage, enabled by The Bag and The Box. To this end, each participant individually, or in small groups, select one scenario to work on and use the sensory cards to envisage an engaging and accessible way to



deliver the contents/artefacts. The sensory cards (Figure 6) are intended as prompt and inspirations to envisage diverse sensory stimulations. The cards provide some examples of material with various sensory properties (e.g., texture, smell, colours) acting as tangible stimuli to foster idea generation and free association (Smith 1998). The output of this activity is a set of ideas to design a multisensory, engaging and inclusive experience of the cultural heritage, as well as ideas on how The Bag and The Box can look like.



Figure 6: examples of sensory card, with the Italian label

### 8) Closing and questionnaire

To conclude the workshop, the team briefly summarise the outputs and the participants are free to share their reflections about the outputs.

Finally, the participants are invited to complete a brief questionnaire to evaluate the workshop activities (see Annex 2).

## 3. Workshops with application partners

The following sections report the activities and outputs of the workshops organised in Austria, Italy, Slovenia and Portugal, involving the application partners.

### 3.1 Workshop with application partners in Austria

The workshop took place on the 27th of June 2022 at the **Kunsthistorisches Museum** in **Vienna, Austria**. The workshop lasted for 3 hours. The workshop involved 7 participants with diverse roles as museum staff (Table 3), and 4 team members from project partners AIT Austrian Institute of Technology and Hilfsgemeinschaft.



The BeauCoup project has received funding from AAL Joint Programme under grant agreement No AAL-2021-8-156-CP

The **Kunsthistorisches Museum** is the largest art museum in Austria and one of the most important museums worldwide. Its collection includes notable paintings, Greek and Roman antiquities, an important collection of coins and medallion.

Table 3: List of participants (application partners) involved in the workshop in Austria

No.	Sex	Role	Museum
01	Female	Communication / PR / social media team member	Kunsthistorisches Museum, Vienna, Austria
02	Male	Communication / PR / social media team member	Kunsthistorisches Museum, Vienna, Austria
03	Female	Team leader – Guests & Services	Kunsthistorisches Museum, Vienna, Austria
04	Female	Art historian, art mediator	Kunsthistorisches Museum, Vienna, Austria
05	Female	Art historian	Kunsthistorisches Museum, Vienna, Austria
06	Male	Member of the Guests & Services team	Kunsthistorisches Museum, Vienna, Austria
07	Male	Art historian, database administrator	Kunsthistorisches Museum, Vienna, Austria

The activities were performed according to the co-creation framework described in section 2, but with the following adaptations.

- For the Photo safari, the participants selected the cultural contents/artefacts also from the online Archive, as they wanted to showcase artworks which are not displayed often or currently in the museum.
- Regarding the discussion of the Photo safari, some participants selected more than 5 items, and thus only a selection of items was presented and discussed.
- The creation of the envisioning scenarios was not performed due to time constraints.

### 3.1.2 Examples of contents/artefacts to promote

The participants selected 22 cultural contents/artefacts from the collection of the Kunsthistorisches Museum in Vienna (Figures 7 – 28). The selection includes paintings and sculpture, as well as some bizarre and unconventional artifacts. It covers both well-known masterpieces and peculiar artefacts which are not exhibited in the museum. Thus, the goal in this case is to make the “invisible” collection accessible by the visitors.







**Balthasar Denner, "Alte Frau" (1721)**

<https://www.khm.at/objektdb/detail/574/>

Interest in displaying more mundane, everyday things and people, while museums tend to focus on pompous symbols of elegance and power.

This picture is rare because it depicts a woman who has aged with dignity. This representation is rare compared to young women, or depictions of old women as witches, gorgons or similar.

The level of detail of the painting is insane, looking at it at a glance, it seems almost like a photo. It's rarely displayed in the main exhibition since it wasn't done by a famous painter and because we "have too many good things to display".

Figure 7: artefact n.1 selected by the participant in Austria



**Die Schamkapsel (Kunz Lochner, (Plattner), Feldharnisch aus einer kleinen Garnitur, 1546) – Hofjagd- und Rüstkammer**

<https://www.khm.at/objektdb/detail/510840/?offset=85&lv=list>

This codpiece represents a subtle, humorous way to communicate art and art history, opener for discussions about masculinity, curious fashion trends and their meaning.

The participant was already thinking of older people when selecting the art pieces, that is why she chose something more humorous that seemed quite popular whenever it was exhibited.

Figure 8: artefact n.2 selected by the participant in Austria



**Michelina Woutiers, Bacchanal, vor 1659 –  
Gemäldegalerie**

<https://www.khm.at/objektdb/detail/2136/?offset=2&lv=list>

This painting was made by one of the few female masters in the museum collection.

The participant wanted to point out the gender stereotypes and started the discussion about how female painters are underrepresented.

The motive is also very special, as it was rare for women to draw male nudity.

Figure 9: artefact n.3 selected by the participant in Austria



**Caravaggio, Rosenkranzmadonna, c. 1601 –  
Gemäldegalerie**

<https://www.khm.at/objektdb/detail/425/?offset=26&lv=list>

According to the Baroque, this painting is a display of drama.

It is related to the emotion in art history.

In participant's opinion, everybody should know and understand the radicality of Caravaggio (e.g., the display of dirty feet).

Figure 10: artefact n.4 selected by the participant in Austria





**Bruegel, Kinderspiele, 1560 – Gemäldegalerie**

<https://www.khm.at/objektdb/detail/321/?offset=0&lv=list>

This painting shows a large amount of people playing a variety of different children's games in the street. It facilitates Interactive exploration, by inviting viewers to look for more and more details in the picture. Older people may recognize some games depicted in the painting, that already existed back when the image was painted and were still being played in their youth. In this way, the painting can trigger nostalgia and discussions among senior visitors.

Figure 11: artefact n.5 selected by the participant in Austria



**Athlet von Ephesos, 1. Jh. N. Chr. - Ephesos Museum**

<https://www.khm.at/objektdb/detail/67188/?offset=4&lv=list>

The participant selected this sculpture to showcase the diversity of the museum collection, as the Ephesos museum is often forgotten. Moreover, it is a way to discuss various departments of the museum, as the statue had to be restored (look "behind the curtain", to showcase other jobs besides curators).

It is an example of ways to display the male and female bodies in art (e.g., regarding the self-confident posture of the young man).

Figure 12: artefact n.6 selected by the participant in Austria





**Rubens, Gewitterlandschaft mit Jupiter, Merkur, Philemon und Baucis**

<https://www.khm.at/objektdb/detail/1630/?offset=0&lv=list>

It is impressive with regards to the variety of techniques utilized, different colours and painting work over decades; the composition gained more and more details over time; very interesting with regards to craftsmanship and technique; lots of information about the creation process.

The topic of climate catastrophes is very relevant right now regarding floodings. It also addresses interesting topics like hospitality, solidarity, welcoming strangers.

Figure 13: artefact n.7 selected by the participant in Austria



**Korbdöschen mit monströser Perle in Gestalt eines Frosches, 18th century**

<https://www.khm.at/objektdb/detail/87299/?offset=0&lv=list>

The participant deliberately picked things that are easy to miss among the museum collection. This artefact is a monstrous pearl in the shape of a frog (also call it a guinea pig). It is part of the Kunstkammer (art chamber).

The participant enjoyed the idea of an artisan/artist adding things to something created by nature (e.g., adding an eye to something that looks a bit like a frog), and addressing the topic of diversity (e.g., what should a frog look like vs. changes from the norm).

Figure 14: artefact n.8 selected by the participant in Austria



**Peter Flötner, "Stolpernder Putto", 1530-1535**

<https://www.khm.at/objektdb/detail/91725/?offset=0&lv=list>

This sculpture is very different from the norm and it shows the beauty of diversity.

It also symbolizes that failing is allowed. To remind this, the participant has a button with the image of this figurine still lying on her desk to remind her that all of us can trip once in a while but still continue on.

Figure 15: artefact n.9 selected by the participant in Austria



**Gregor Bair, Valentin Drausch & Heinrich Wagner, Bär als Jäger, 1580-1581**

<https://www.khm.at/objektdb/detail/87293/?offset=0&lv=list>

Regarding olfactory sensations, the fur of the "bear as a hunter" was once coated with ambergrease (a waxy, substance of blackish colour produced in the digestive system of sperm whales), which gave it a very distinct and pleasant smell (the smell has faded by now however).

It addresses topics of turning things around and olfactory sensations.

Figure 16: artefact n.10 selected by the participant in Austria



**Ancient Egyptian pillars & wall painting (shown in one of the rooms of the KHM)**

This artefact is an ancient Egyptian pillar that was gifted to the emperor Franz Joseph; pillar is both a structural element and an art object at once.

It stimulates the reflection and discussion about the original locations of some pieces of art (also regarding the Egyptian origin), which were de-contextualised.

Figure 17: artefact n.11 selected by the participant in Austria





**Francesco Mazzola, Self-Portrait in a convex mirror, 1523/1524**

<https://www.khm.at/objektdb/detail/1407/?offset=2&lv=lst>

It is a representation of selfies from the 16th century, painted on a convex piece of wood since convex mirrors were used for self-portraits.

"Is this a mirror or is this a painting?"

It was gifted to Pope Clemens VII to gain favour and a patronage.

Figure 18: artefact n.12 selected by the participant in Austria



**Cellini, Saliera**

The participant already noticed during the ARCHES project how difficult it is to promote this object.

With regards to art pieces, she does not focus on details about the artist, but more about how it is embedded in art history, politics etc.; the object is amazing both with regards to its contents and the craftsmanship, as well as from an artistic perspective.

It would be great if there was a way to allow people with disabilities better access to such an art piece. There is also a larger model of the Saliera (made from Styrofoam) that was created as a "selfie point", although it lacks in details compared to the original object.

Figure 19: artefact n.13 selected by the participant in Austria



### **Gemma Augustea, 9-12 AD (Antikensammlung)**

<https://www.khm.at/objektdb/detail/59171/?offset=0&lv=list>

It is an aggrandisement of the deeds of emperor Augustus and his successor Tiberius, showcasing which values were important to the self-conception of an emperor: e.g., with regards to the choice of allegoric figures picked, which god was chosen to represent him, which events were depicted (e.g., the victory over the "barbarians").

It is a very fascinating and pretty object from their collection of antiques, but the participant is not sure on how it could be experienced by people with disability, possibly as a tactile artwork.

*Figure 20: artefact n.14 selected by the participant in Austria*



### **Senatus Consultum de Bacchanalibus (Antikensammlung)**

<https://www.khm.at/objektdb/detail/52468/?offset=2&lv=floorplan>

It is an inscription about the Roman Senate's order to prohibit any festivities to honour Dionysos/Bacchus.

It is interesting to understand what was given as reasons, what the assumed role of the Maenads was etc. Furthermore, it's an object that is easily missed despite being the only remaining copy of this senate order.

*Figure 21: artefact n.15 selected by the participant in Austria*





### Roelant Savery: Orpheus unter Tieren (Gemäldegalerie)

[www.khm.at/de/object/1705/](http://www.khm.at/de/object/1705/)

It was chosen since the topic of connection between mankind and nature is a very current issue. In participant's opinion, we need to build a connection to nature, and also to our own nature. Art can serve as a school for opening one's eyes. Rather than focusing on specific contents, the goal should be to meet the art piece without preconceptions and let yourself get "infected" by the art piece.

Morpheus can maybe be seen as a metaphor for people with motor impairments, as he lost what he most desired, but rather than looking for a replacement, he instead went to free his object of desire and revived nature this way.

The painting is related to the topics of prosperity, flourishing; Morpheus as a singer has created a connection to nature, and even seems to merge into the stone in the background, barely visible; living often means losing something, and learning to accept the loss as this is required to stay connected to oneself.

Figure 22: artefact n.16 selected by the participant in Austria



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### Drawing of a piece of iron

From the antique collection, it depicts chains hanging out of the piece of iron.

It was found in an iron mine in Slovakia, dated to the time of the Trojan wars.

Figure 23: artefact n.17 selected by the participant in Austria



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### Miszellan – pars pro toto

It looks like a coin but it isn't a coin. It depicts a roman number in the back and some kind of scene in the front, often quite explicit, which led to speculations regarding their use (e.g., as jetons in a brothel or as tokens for games).

Figure 24: artefact n.18 selected by the participant in Austria



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### Don Franciscus Gonzaga als Wickelkind, 1586

It hangs in the depot but it is never shown, it was "brutally" restored.

The participant selected this painting because it represents many artworks in the collection that are never shown in galleries, but are nonetheless a part of the whole.

Figure 25: artefact n.19 selected by the participant in Austria



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### Antonio de Pereda y Salgado – Allegory of Vanitas, 1634

It is a masterpiece of Pereda, who wanted to join the Spanish court and was looking for a patron that would support him. The figure holds a portrait cameo of emperor Charles V.

It is related to the topics of lost glory and transience – text in the picture saying "nil omne", everything is nothing.

Figure 26: artefact n.20 selected by the participant in Austria



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#### **Devil in glass, first half of the 17th century**

This artefact represents a little devil that is seemingly trapped in a glass as warning.

It is related to the topic of superstition and ways to keep "demons" away; similar to using amulets, teeth of adders etc.

*Figure 27: artefact n.21 selected by the participant in Austria*



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#### **Master of Furies – Phoenix, first quarter of the 17th century**

It is an example of incredible craftsmanship (it is made of ivory). It represents a phoenix but it looks like a chicken.

People pretty much always react to it whenever it is displayed, which is why the participant wanted to share it.

*Figure 28: artefact n.22 selected by the participant in Austria*

### 3.1.3 Examples of collage

The participants created 16 collages (Figures 29 – 44). They work only on a selection of the most relevant cultural contents/artefacts, compared to the corpus of items selected during the Photo safari. Moreover, in one case the participants decided to use the same artefact to create more than one collage, in order to explore different possibilities and SDMs (see Collage n.1, n.6, n.12).





The Saliera could be a tangible relief or a content to explore using the tablet of Feelif. The participants questioned if the tactile element of Feelif would be necessary for this and mentioned that maybe a simple audio description would be enough. Having both audio descriptions and a description in sign language would be nice, but for sign language they would prefer real people rather than an avatar if it is possible, since a lot of information is conveyed through facial expressions.



Message behind this artwork ("Orpheus unter Tieren") was to make nature experienceable, thus there is a strong focus on providing different sensations – hearing, smelling etc. The idea is to include a 360° video where you can turn around and feel like you're in the middle of the painting. Adding audio as well as smells via fragrance diffuser could help conveying the feeling of nature.

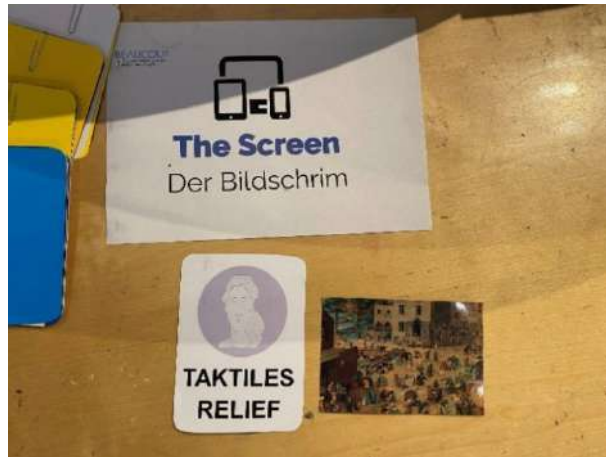
The smartphone could use augmented reality to show enhanced information.



Challenge: the painting "Alte Frau" has a bit less "going on" than some of the other things that were discussed, thus mostly focused on seeing and hearing. It is difficult to see how this can be properly expressed, possibly by building a narration about the facial features (wrinkles based on age or worries?), having the woman narrate events of her life or similar. This requires to use: a) video and possibly projector so multiple people can share the experience; b) mobile phone and computer to show it on a display; c) audio, possibly enhanced with sign language. The narration should explain small details that



are difficult to see, and things like why she might be wearing a headscarf/fur.



As mentioned before, the painting by Bruegel depicts some people playing games. The idea is to invite the elders to recognize games that they played in their youth, and use this to start sharing stories about it. During discussion, the participants thought about the possibility of recording the audio narrations of the seniors, so as to create a collection of stories that you can listen to.



The painting by Rubens has a lot of details and layers, thus in a digital version it would be possible to zoom into details. Adding sound effects (e.g., water, birds) would also further enhance the experience, by utilizing sounds and music to convey contents. Making sure that the other layers aren't lost, additional written text, audio-descriptions and sign language can be used to make it more accessible, e.g., by using a tablet similar to the Tactile Multimedia Guide.



Figure 34: Collage n.6 made by the participants in Austria



Figure 35: Collage n.7 made by the participants in Austria



In this case, the Saliera can be a tactile relief or a 3D-printed edible object as a small goodie you can pocket. Written text in a large font that elders can take with them into their room to read it there (since older people were assumed to prefer written text compared to digital content).

The “bear as a hunter” can be a 3D printed replica that is coated with ambra-paste like the original object, to enable the original olfactory experience of the real art piece. Some participants expressed worries about a lack of control over the smell: their suggestion is to use a scratch card that releases smell once it was scratched open instead, to place control if/when they want to experience the smell back in the hands of the users.

Furthermore, there were worries if small details may be too difficult to 3D-print without it becoming too delicate to handle.

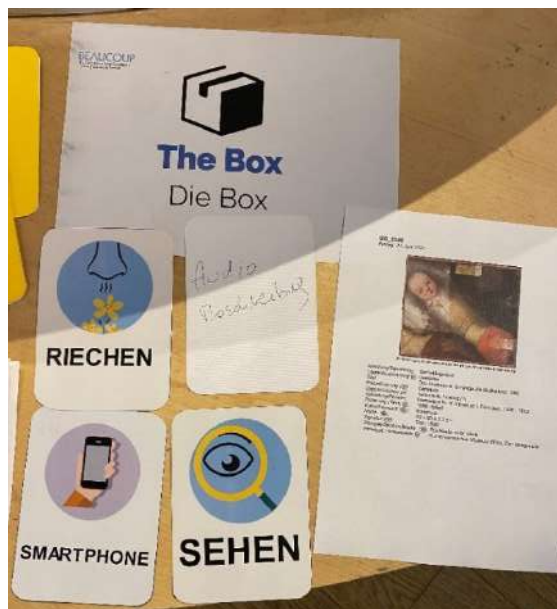
Regarding the Gemma Augustea, the idea is to use a tactile relief based on Tactile Multimedia Guide project, to combine both tactile and visual stimuli.

The goal is making small details more easily visible, e.g., by using Optivid technology, could also be beneficial.

Furthermore, in a video it could be attempted to restore the original colours, make small parts move (e.g., showing the flag being hoisted) to add a bit of emotion to it.



Figure 37: Collage n.9 made by the participants in Austria



Idea to make this painting by the female master experienceable with smell, sound and taste, by adding grapes as a representation for wine tasting, goat cheese etc.; regarding smells they would add male sweat to make the painting experienceable as a whole.

The narration would be pure audio without a screen, and would also discuss why there were so few female masters in this timeframe.

To promote the painting of “Don Franciscus Gonzaga als Wickelkind”, audio-description and scratch card that releases a smell can be used, maybe even integrated in the picture: for example, different areas of the image with different smells.



The idea to promote the Miszellen – pars pro toto is to add multiple tokens and make them experienceable via touch.

Additionally, we can experiment with auditory impressions of the scenes depicted on the tokens.

We can also invent games where these tokens can be used (as a more experimental use case).



Another idea related to the Saliera is to add a 3D-printed food item as a give-away. Something salty would be appropriate, or adding something like a bag of salt as a goodie.

With projector, it was meant that there could be a T-Shirt that has a motive of the Saliera printed on it or something similar.

The smartphone app could provide additional information in various languages, speech types and qualities (e.g., also in simple text), and potentially also show a film in sign language about it.





Figure 41: Collage n.13 made by the participants in Austria



The “Devil in glass” could be represented in the shape of a sweet with a differently tasting core, or an (anti-alcoholic) cocktail. In this way, it would allow touching and tasting.

The idea is to create 3D-replica of this “Stolpernder Putto”, or a 3D model to let the grandchildren print it.

The goal is to provide the person with a tangible reminder that it is okay to trip and fail from time to time. It could then be placed on one’s desk, as one participant has done.



As in the case of the “Stolpernder Putto”, the Wicker jar can be a 3D printed replica or a 3D model to print.

We can also experiment something to make it more interactive: e.g., design your own monster pearl and create a story.



The selected object is just an example, the idea is to showcase multiple objects from multiple collections, with audio recordings (especially when many things are going on); would also add information about the circumstances behind the original, and maybe make the motive purchasable as a print if people like it.

### 3.1.4 Examples of envisioning scenario

Based on the ideas discussed with the participants, the team elaborated two main scenarios.

#### Scenario 1 – The Bag



The BeauCoup project has received funding from AAL Joint Programme under grant agreement No AAL-2021-8-156-CP

The target users are: a) elderly people who are able to visit nearby places to pick items up themselves; b) carers who can pick things up for other elders – bringing the bag into the elders’ homes; c) visitors of the museum who would be interested in bringing home a keepsake from their trip - customers.

The contents to provide include small sculptures, coins or similar artefacts that could be represented as a 3D-printed (and possibly edible) artifact, like the “Devil in Glass”, “Saliera”, “Stumbling Putto” or the coin-like *pars pro toto*. In addition to these artefacts, the audio-recordings serve to provide context information and explanations about the artefacts. Providing an easy way to access additional information via smartphone app could further improve the experience.

At the museum shop or partner locations, customers can buy bags of goodies that they can bring back home, filled with goodies like food items, 3D-printed objects, T-shirts or similar related to art objects. Additional information about these artifacts is provided in a multimodal way (using text and audio files, for example) to provide required context information and raise interest in the artifacts, possibly augmented further using a smartphone app. The bag’s contents would change regularly.

If items that are only meant to be rented out are also included in the bag, customers could exchange their old bag (excluding any items meant to be consumed / kept) for a new one with new contents (at a lower rate). The bag could also be promoted as a perk for getting an annual ticket to the museum.

### Scenario 2 – The Box

The target users are elderly people living in nursing homes, and the staff of the nursing home setup and mediate the experience.

The cultural artefacts include representations of paintings (e.g., Bacchanal), low-relief engraved gems (e.g., Gemma Augustea), and coins/tokens (e.g., *pars pro toto*). These artefacts are explored through the use of tactile reliefs, Optivid and audio descriptions.

The experience takes place at the nursing home. A box would be delivered which includes a tactile relief, to combine both tactile and visual stimuli. An additional audio narration (also shown in video or text form on screen) would allow users to explore the artifact and get more detailed information. Visually, the image could also allow for options to e.g., restore the original colours of the artifact, or make certain parts move (e.g. showing a flag being hoisted) to add more emotion to it. Optivid technology could be combined with the visual representation of the artifact in order to make small details more easily visible and to allow for personalising the visualisation to optimally support the users’ eyesight.

## 3.2 Workshop with application partners in Italy

The workshop was organised on the 9<sup>th</sup> of June 2022 at the **Museo della Mezzadria** (Sharecropping Museum) in **Buonconvento, Italy**. The workshop lasted for 3 hours.

The workshop involved 7 people working at Museo della Mezzadria (Sharecropping Museum) and at Museo d’Arte Sacra (Museum of Sacred Art) (Table 4), and 5 team members from the project partners University of Siena and Fondazione Musei Senesi.



The **Museo della Mezzadria Senese** (Sharecropping Museum) of Buonconvento is located in the evocative setting of a 17th-century granary. It pulls the visitors inside the rural world of agriculture that characterized the society and countryside of Tuscan until as recently as the 1970s. The museum recreates slices of the life and work of the peasant farmers through period photographs, original objects, literary quotations, music, films, and archival documents.

The **Museo d'Arte Sacra** (Museum of Sacred Art) of Buonconvento, located in Palazzo Ricci Socini, houses a collection of precious sacred works of art (paintings, sculptures, goldwork and fabrics) coming from the territory of the Val d'Arbia, an outstanding testament to the culture of fine figurative work created by leading Sieneese masters from the 13th to the 19th century.

Table 4: List of participants (application partners) involved in the workshop in Italy

No.	Sex	Role	Museum
01	Female	Art historian	Fondazione Musei Senesi, Siena, Italy
02	Female	Team leader	Museo di Arte Sacra, Buonconvento, Italy
03	Female	Communication / Public Relations / Events	Museo di Arte Sacra, Buonconvento, Italy
04	Female	Public Relations / Events	Museo di Arte Sacra, Buonconvento, Italy
05	Female	Team Leader	Museo della Mezzadria, Buonconvento, Italy
06	Female	Public Relations / Events	Museo della Mezzadria, Buonconvento, Italy
07	Female	Art historian	Museo della Mezzadria, Buonconvento, Italy

The activities were performed according to the co-creation framework described in the section 2, but some adjustments were made.

- The discussion of the Photo safari was shortened: each participant took a few minutes to select only one picture from the contents/artefacts selected during the Photo safari and explained the reasons for the choice. Then, all participants together selected three additional contents/artefacts, in order to have a total of 10 selected items.
- The creation of the envisioning scenarios was adjusted because the participants found difficulties in defining the complete scenarios based on their ideas. Thus, the activity includes a discussion with all the participants to imagine stories focused only on three scenarios. During the discussion, a member of the team took notes to complete the scenario cards. The other scenarios were defined by the team and discussed with Fondazione Musei Senesi.
- Compared to the expected plan, the evaluation of the technologies was not performed because there was no time left and the participants were tired. The technologies were demonstrated and the team collected participants' comments during the demonstration.







*Figure 45: the participants write notes to discuss the Photo safari during the workshop in Italy*





*Figure 46: a participant touches the relief during the workshop in Italy*



*Figure 47: the participants explore the demo of "The Hunter's funeral" using Feelif tactile tablet during the workshop in Italy*

### 3.2.2 Examples of contents/artefacts to promote

The cultural artefacts/ contents selected by the participants range from objects related to the ancient practices and traditions of the agrarian countryside (e.g., the cart, the bed warmer), to pieces of art in the form of paintings of Sacred Art (Figures 48 – 57). They were selected among the museum collections because of their intrinsic artistic value (e.g., the painting by Duccio di Buoninsegna), or because they have the potential to evoke an imaginary, to preserve and transmit the intangible

heritage related to cultural traditions, to stimulate the reflection by the visitors on cultural and socio-economic aspects of the society.

During the discussion of the Photo safari, the participants pointed out the possibility to exploit: a) the original artefacts or their representations in different forms such as photographs and tangible replicas; b) the interpretations, traditions and stories related to the artefacts to communicate the (artistic, cultural, social) value of the heritage; c) connections among different artefacts both within the museum collection and within a network of different museums.



### **Kneading trough**

This object was used to make the dough and leave it to swell or ferment.

It is selected by the participant because it is related to her personal memories: she perceives it as a magical casket; when she was a child, she enjoyed seeing her grandmother making the dough and she had fun playing with the crumbs.

Apart from this personal connection with the artefact, the participant pointed out that it attracts the visitors' curiosity and it is strongly related to the local traditions of making the bread that involved the entire village to share a wood oven.

Thus, the message to bring to the visitors is related to the cultural traditions.

*Figure 48: artefact n.1 selected by the participant in Italy*



### **Conch used for the laundry**

It is a conch made of earthenware that was filled with ash and hot water, to wash the clothes. In the museum. It attracts visitors' attention because it is an unusual object and people cannot understand its function at first sight.

Regarding the contents to deliver, it is necessary to explain the function of the object in order to appreciate it, and the imaginary related to the laundry practices: indeed, the laundry was a very hard work performed by the women living in the same home, all together as a collaborative activity, and it is related to a smell that is very peculiar of the ash.

*Figure 49: artefact n.2 selected by the participant in Italy*







### Bed warmer

The bed warmer is a wood structure with a metal pot containing the embers. It was used to warm the bed in winter.

It is selected because it is an old tool used by the participant when she was young, that is now replaced with more innovative tools.

Figure 50: artefact n.3 selected by the participant in Italy



### Fresco of Palazzo Ricci Socini

The Museum of Sacred Art is located in the house of the Ricci Socini family, that is decorated with art nouveau frescos. The fresco selected by the participant decorates the four walls of the internal stairs, with motives inspired to the seasons and nature.

It is selected because there is the need to promote another kind of heritage: the building of the museum in itself.

Figure 51: artefact n.4 selected by the participant in Italy



### Madonna col bambino (Madonna with Child) by Matteo di Giovanni

The painting represents the Madonna who holds Christ Child in her arms, and there are two angels in the background.

It is selected by the participant because of its style: it is very innovative compared to the paintings of the same time, and the figure of the Madonna is fascinating and enigmatic. To really appreciate its beauty and value, it is necessary to compare it with the other paintings exhibited in the same room of the museum, because the other paintings are characterised by the medieval style (e.g., gold background, static figures, absence of tridimensionality).

Figure 52: artefact n.5 selected by the participant in Italy



**Madonna col Bambino e due Cherubini (Madonna with Child and two cherubs) by anonymous author**

This artefact is a relief made of marble that represents the Madonna with Christ Child.

It is selected not because of its aesthetics and stylistic properties, rather because it is related to an ancient legend and it is strictly connected with the history of Buonconvento.

To communicate the value of this artefact, it is important to tell its story. Moreover, since it is a relief, it invites the visitors to touch its elements (e.g., the clouds on the bottom, the clothes of the Madonna). It is the perfect candidate to create a replica to touch.

Figure 53: artefact n.6 selected by the participant in Italy



**Ecce Homo by Rutilio Manetti**

This painting is selected because it is one of the masterpieces of the museum collection. It invites the visitor to have a contemplative experience to appreciate its beauty.

It can be used to stimulate a reflection about the body of Christ that is not scratched by the suffering; the suffering does not destroy, and the dignity remains. To this end, it needs to be compared with other paintings in which the figure of Christ is suffering.

Figure 54: artefact n.7 selected by the participant in Italy



**“Secular Madonna” and “Sacred Madonna”:**

photograph of a woman breastfeeding a baby from the Museo della Mezzadria; painting by Lorenzetti called “Madonna del latte” (Madonna of the milk) from the Museo di Arte Sacra.

This is a combination of two different artefacts selected by the group of participants, to be strictly connected to promote a reflection by the visitors, building a bridge between the religious figures and the common people.

Figure 55: artefact n.8 selected by the participants in Italy







**Madonna col bambino (Madonna with Child) by Duccio di Buoninsegna**

It is selected by the group of participants for two reasons: because of its importance as piece of art since it was made by Duccio di Buonsinsegna who is considered one of the greatest Italian painters of the Middle Ages; and because there are other versions of the painting in different museums in Italy and abroad (Museo dell'Opera della Metropolitana in Siena, National Gallery of Umbria, Metropolitan Museum of Art in New York, the British Museum in London). This allows us to create a network of museum collections.

Figure 56: artefact n.9 selected by the participants in Italy



**Cart with everyday objects of the farm workers**

This artefact was selected by the group of participants because it is a symbol the life of the farm workers. It is a cart made of wood containing several everyday objects. It was used to carry all the stuff owned by the farmers, when they have to move from a village to another place. At first sight, it seems to contain rubbish, while it contained all the precious objects of the people.

The objects contained in the cart are not of economic or artistic value, rather they are evocative. They are intended to stimulate the imagination of the visitors who can understand the condition of the farm workers, thanks to an audio narration with the voice of the farm workers.

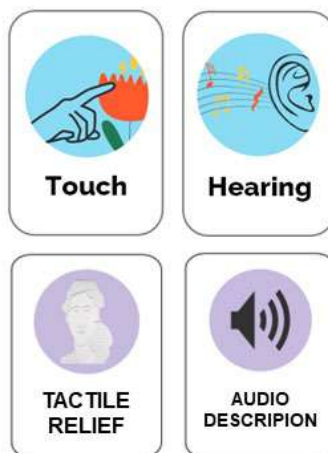
Figure 57: artefact n.10 selected by the participants in Italy

### 3.2.3 Examples of collage

The combinations of artefacts and cards are shown below (Figures 58 – 69). In some cases, the participants envisaged different modes of interaction to experience the same cultural content/artefact (see Figures 58 and 69, Figures 59 and 68).



**"Ecce Homo" by Rutilio Manetti**



**The Bag**

*Figure 58: Collage n.1 made by the participants in Italy*

**Fresco of Palazzo Ricci Socini**



**The Box**



*Figure 59: Collage n.2 made by the participants in Italy*

Kneading trough



**The Box**

Figure 60: Collage n.3 made by the participants in Italy

“Secular Madonna” and “Sacred Madonna”

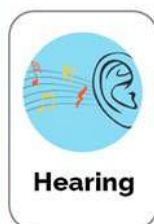


**The Box**

Figure 61: Collage n.4 made by the participants in Italy



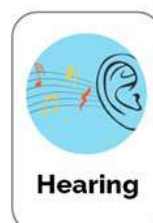
**Cart with the objects of the farm workers**



**The Box**

Figure 62: Collage n.5 made by the participants in Italy

**“Madonna col Bambino  
e due Cherubini”**



**The Box**

Figure 63: Collage n.6 made by the participants in Italy



Conch used for the laundry, Chopping board and mincing knife



**The Box**

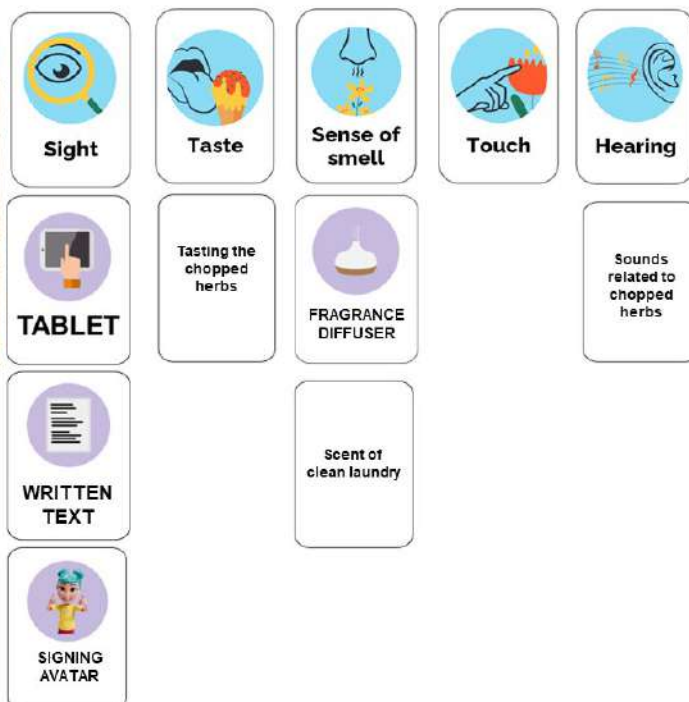


Figure 64: Collage n.7 made by the participants in Italy

**"Madonna col Bambino"** by  
Duccio di Buoninsegna



**The Screen**

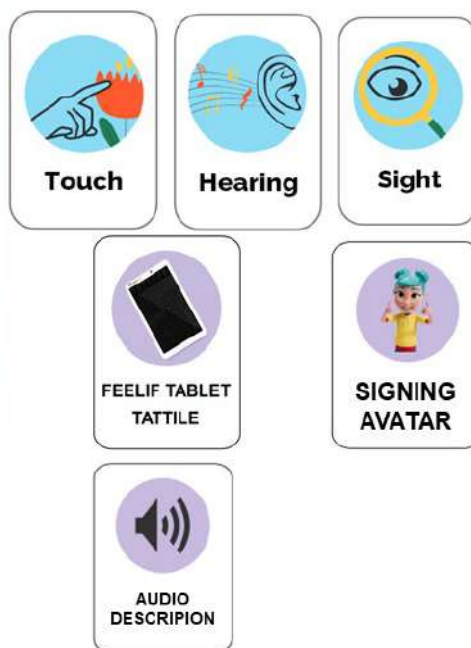


Figure 65: Collage n.8 made by the participants in Italy

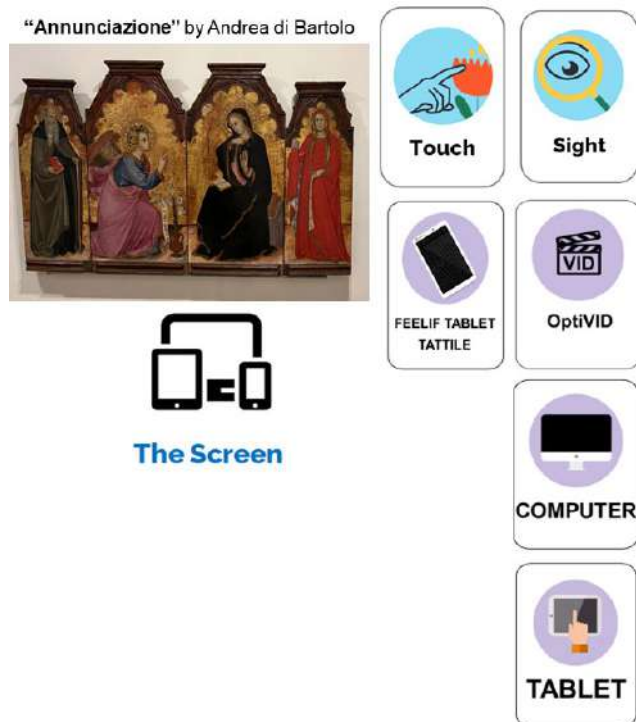


Figure 66: Collage n.9 made by the participants in Italy

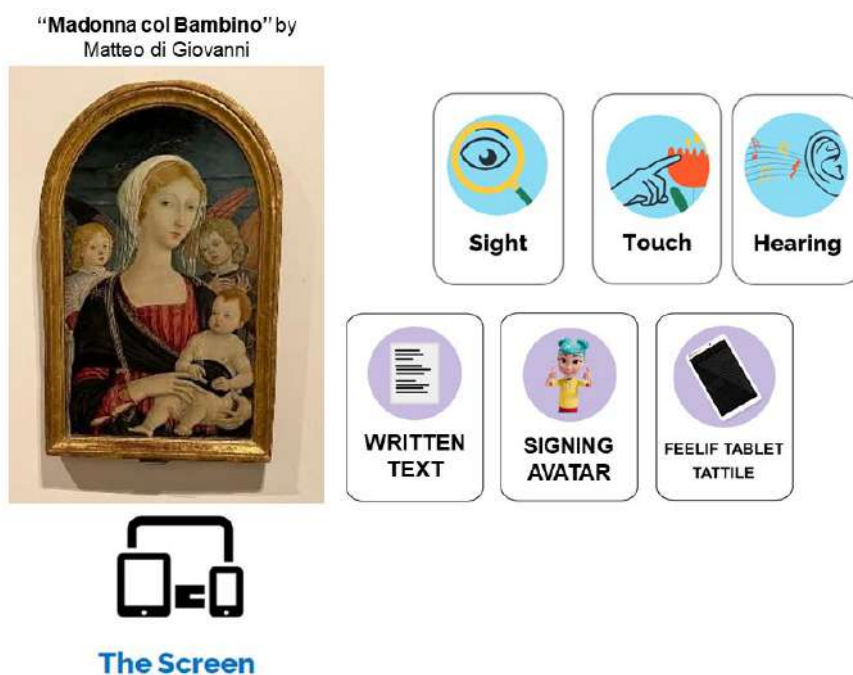


Figure 67: Collage n.10 made by the participants in Italy

Fresco of Palazzo Ricci Socini



### The Screen



Figure 68: Collage n.11 made by the participants in Italy

"Ecce Homo" by Rutilio Manetti



### The Screen



Figure 69: Collage n.12 made by the participants in Italy

#### 3.2.4 Examples of envisioning scenarios

##### Scenario n.1 The Screen – Virtual exhibition

The Screen is a virtual exhibition that connects some artworks from different museums' collections, around a common theme. The virtual exhibition can be experienced remotely, and the user can select the tools based on their needs: indeed, the exhibition provides specific tools to address the needs of deaf people and blind people.



The BeauCoup project has received funding from AAL Joint Programme under grant agreement No AAL-2021-8-156-CP

#### For deaf people

The visitor is at home. Using the tablet or the notebook, the visitor discovers the virtual exhibition dedicated to the paintings of the Renaissance. The gallery of the exhibition shows a series of paintings to explore, and the first painting to explore is the “Madonna col Bambino” (Madonna with Child) by Matteo di Giovanni. The visitor contemplates the high-quality image of the painting, noticing all its details. The exhibition invites the visitor to explore the other paintings and reflect about possible similarities and differences.

To better understand the value of the artworks, s/he can choose among two tools: a video with an avatar explaining the artworks in sign language; the LookApp system that supports him/her in reading the textual description of the artworks thanks to the use of pop-up videos to explain some technical words and concepts in sign language.

In this way, the visitor can appreciate the value of the different artworks, and s/he is stimulated to visit some collections included in the virtual exhibition, to discover the other artworks of the collections.

#### For blind people

The visitor is at home and using the Feelif tablet s/he can discover the virtual exhibition. S/he navigates the virtual map of the exhibition, where the different paintings are located. By clicking on an area of the map (as a point of interest), the visitor discovers the painting “Madonna col Bambino” (Madonna with Child) by Matteo di Giovanni: while touching the image, s/he listens at the audio narration that serves as a guide for the exploration and reflection.

By exploring the other areas of the map, and so the other paintings included in the virtual exhibition, the visitor can understand the different styles of the Renaissance paintings.

### **Scenario n.2 The Screen – Remote guided tour**

The visitors are older people who are temporary hospitalised. They often experience loneliness and sadness, and they are worried about their health. One day, the hospital staff invites the patients to join a recreational activity organised in collaboration with the Museum of Sacred Art in Buonconvento (Italy).

Using the tablet in bed, the patient connects to the remote tour of the museum, meeting the museum educator and the other remote visitors. The visit starts from the internal staircase of the museum, where the visitors can admire the frescos decorating the walls and the ceiling. The museum educator attracts their attention on some details: for example, the garlands with the elements of the four seasons. The participants start a discussion to share their memories and reflections about the ceremonies, rituals and local traditions related to the seasons.

At the end of the tour, the visitor feels a little better: s/he spent a couple of hours learning new things, admiring the beauty of the artworks, and meeting people from all over the Country.

### **Scenario n.3 The Bag – Tactile postcards**

This scenario is tailored on the needs of blind and visually impaired people for having accessible souvenirs of the museums.

At the end of the museum visit, the visitor decides to buy a souvenir to bring home as a memento of the experience, together with something to share with his/her relatives. The museum offers two solutions: the tactile postcards, made of resin or wood, representing some artefacts of the museum





collection; the Feelif tablet to create a personalised tactile interactive postcard to share with others. In the latter case, the visitor uses the Feelif tablet to select a picture (representing one artefact of the museum collection) or to draw a picture, to record a voice message attached to the picture, and to send the postcard via email to the recipient.

If the recipient is blind or visually impaired, s/he can discover the postcard using the Feelif tablet. Otherwise, the postcard appears as an image with a voice message.

#### **Scenario n.4 The Bag – Travelling backpack**

The museum educator brings a transparent backpack containing a relief of the painting “Ecce Homo” by Rutilio Manetti. The educator walks in the suburbs, in the small villages and stops in the squares where the people usually meet, or the people approach the educator because they are curious to see what the backpack exhibits.

The educator shows the relief and explains that it is a reproduction of a painting exhibited at the Museum of Sacred Art in Buonconvento (Italy). The people touch the relief while the educator guides them in the exploration. The people take time to talk and share the imaginaries and reflections inspired by the painting. They are curious to visit the museum and see the other pieces of the collection.

#### **Scenario n.5 The Bag – Creative toolkit for new pieces of art**

The Bag is a set of “ingredients” to inspire the creation of new pieces of art and performances.

The “ingredients” are selected and collected by the seniors in nursing homes: they select some artefacts from the museum collection, some personal objects (e.g., photographs, traditional clothes, food, fragrances, everyday objects), audio/video recorded stories of cultural traditions and personal memories. Such materials are used by young artists who create new pieces of art or performances inspired by the ingredients provided. Once created, the artworks are included in temporary exhibition in museums, schools, nursing homes, cultural events, and meeting place of the local communities.

#### **Scenario n.6 The Box – Laboratory of storytelling**

The seniors of the day-care centre are invited to join a creative activity to explore the heritage based on personal memories, multisensory stimulations and storytelling. The museum educator provides the participants with some materials to use as inspirations: for example, pictures and replicas of some artefacts of the collection of the museums, the Tactile Multimedia Guide, recording of sounds and traditional chants, documentaries to show with the OptiVid system, textile fabrics and fragrances. Inspired by these materials, the participants rediscover cultural traditions, chants, historical events, and personal memories. The stories are video/audio recorded by the museum educator, to be included in the collection of the museum.

### **3.3 Workshop with application partners in Slovenia**

The workshop took place on the 6<sup>th</sup> of June 2022 in **Gorenjska Museum** (Gorenjski Muzej), in **Kranj, Slovenia**. The workshop lasted for 8 hours.



This was the first workshop and it represented a pilot to test the plan and the toolkit, in order to better organise the workshops in the other Countries. Indeed, the consortium discussed this workshop based on the feedback by Feelif, to identify possible ways to adjust the co-creation plan and toolkit.

The workshop involved 5 participants from the Gorenjska Museum (Table 5), and 3 team members from Feelif.

The **Gorenjska Museum (Gorenjski Muzej)** is the central regional institution for the protection of movable heritage in the Gorenjska region. We build our mission based of key collections: Archeology, Ethnology, Folk art department, The ancient history, The Art history, Cultural History, Recent history, Photography department, department of artistic creativity of Gorenjska and the Prešereniana. The mission of the museum is to contribute to the culture, science, education, tourism, and leisure activities, by partnering with different stakeholders throughout the region to co-create sustainable development in the region.

Table 5: List of participants (application partners) involved in the workshop in Slovenia

No.	Sex	Role	Museum
01	Female	Master of History, Head of the Special Library	Gorenjska Museum, Kranj, Slovenia
02	Female	University graduate historian and journalist, curator	Gorenjska Museum, Kranj, Slovenia
03	Female	Andragogue - pedagogue, professional associate - curator	Gorenjska Museum, Kranj, Slovenia
04	Female	Highly qualified historian, documentalist	Gorenjska Museum, Kranj, Slovenia
05	Female	Doctor of science, ethnologist, curator	Gorenjska Museum, Kranj, Slovenia

The workshop was performed according to the co-creation framework described in the section 2. Serving as pilot test to evaluate the co-creation plan and toolkit, this workshop pointed out the following issues and adjustments.

- With the Photo safari, the team collected 25 items that turned out to be too many: indeed, the presentation and discussion of each item took too long. Thus, the team suggested limiting the number of contents/artefacts to work on up to 10.
- The creation of the envisioning scenarios was challenging and the participants preferred to take time to elaborate the scenarios and send them back to the team in the following days.

### 3.3.2 Examples of contents/artefacts to promote

The cultural contents/artefacts selected by the participants during the Photo safari are listed below (Figures 70 – 80). Some contents/artefacts were selected by more than one participant.



The general criteria for choosing the items were that they had a significant historical or cultural meaning for the local community. Sometimes the object itself is something special and it deviates from the usual, like a disappearing craft or tradition.

The participants also wanted to introduce the elderly to the lives of people in the past and their professionalism. Some objects were chosen to evoke emotions and memories in the elders and encourage them to start talking about their youth.



#### Postcard

The subject of this postcard is Kranj, today's Maistra Square, Miklavčič general store, and Carl Puppo store.

This object represents homeliness. It is a part of our past and many elders have dear memories regarding similar postcards

- homeliness
- past/tradition
- memory of childhood

Figure 70: artefact n.1 selected by the participants in Slovenia



#### Small bread

It represents the intangible cultural heritage of Slovenia, the aesthetic value, the still well-preserved tradition of making small holiday bread (for religious events, personal and family holidays).

It may think of handicraft creativity and skill, feeling of warmth reflected by wooden models and honey cakes.

Figure 71: artefact n.2 selected by the participants in Slovenia



### Catalogue of the exhibition

#### *Mandolina, zvezde in Bled*

It is selected because of the nationwide recognition of the event and music creators at a turning point in our half-past history. It allows us to combine forms of interpretation (audio - visual).

In the two decades of the last century, the Slovenska popevka music festival was most marked by domestic popular music. Quality songs were created that did not sink into oblivion. They are part of our historical memory. The start of the festival was at the same time a time of great social change at home and abroad.

Figure 72: artefact n.3 selected by the participants in Slovenia



### Bobbin tape lace

This is a crocheted round beige napkin, that originates from Škofja Loka. Bobbin tape lace is a part of traditional handcraft. People still have knowledge of lace-making and childhood memories of handcrafts and holidays.

- handmade art
- memory of handicrafts
- memory of the holidays

Figure 73: artefact n.4 selected by the participants in Slovenia





**Exhibition of documents and objects on percussion work in Slovenia in the first decade after the Second World War.**

*Slovenci, Slovenke, takoj na delo za obnovo domovine!*

Criteria: current topics, rich content, expressiveness, originality of documents and objects, interpretation of lesser-known events that are supposed to help identify socio-political conditions. The exhibition illuminates a time of extraordinary events, enthusiasm, and mutual solidarity. A variety of documents, objects and personal stories invite us to reflect on the values that shape and characterise us.

Figure 74: artefact n.5 selected by the participants in Slovenia



**Landscape photography of Carinthia region**

The author is Janez Marenčič, and the name is Koroška pokrajina (Carinthia region). Landscape photography evokes memories of what life was like in the countryside in the past. The motif radiates calmness.

- colour
- memory of peasant life
- calmness

Figure 75: artefact n.6 selected by the participants in Slovenia



**Sheaves of dyed horse tail hair for weaving sieves, Stražišče near Kranj**

Between the 16th and 20th centuries, the villages between Kranj and Škofja Loka were the largest centres for making sieves in Europe.

These objects are selected to draw attention to the craft that is (almost) extinct about how the sieve is formed.

The idea is to present how a horse tail gets processed into a sieve of different patterns and uses.

Figure 76: artefact n.7 selected by the participants in Slovenia



### Bronze hand pendant

This is a significant find, and the motive of hand in silver and gold is often a protocol gift from the municipality of Bohinj. Archaeologists interpret it as an amulet with positive energy. It was found in a woman's grave, and it is believed to have been in a set of other pendants worn by the deceased on a chest buckle.

Figure 77: artefact n.8 selected by the participants in Slovenia



### Transport box

Due to the harsh climate of Bohinj, beekeeping in Bohinj was not focused on honey production, but on breeding and selling Carniolan lavender queen bees. With this type of transport box, Jan Strgar, (male, important figure in Slovenian beekeeping history) sent Carniolan lavender all over the world, even to Egypt, where they were very much loved. Long Egypt summers throughout the whole year meant that the bees were gathering honey all the time without rest. Strgar is the most famous and professional beekeeper of his time. The participant selected this object to represent a great achievement of that time.

Figure 78: artefact n.9 selected by the participants in Slovenia



### Melted bullets

Traces of the fighting on the Isonzo Front in the First World War are still visible in the natural environment. Participant's intent is to draw attention to the impact of the First World War on nature: in the highlands we can still find discarded military equipment that has a negative impact on the natural environment - rust seeps into the ground and thus pollutes the soil. The image of the landscape has changed because of the cannon fire; ditches and caverns built by soldiers are still visible today.

Figure 79: artefact n.10 selected by the participants in Slovenia



### 3.3.3 Examples of collage

The following figures show the 10 combinations of contents/artefacts and cards made by the participants (Figures 81 – 90). They are focused on the most relevant cultural contents/artefacts presented in the previous paragraph.



Figure 80: Collage n.1 made by the participants in Slovenia



Figure 81: Collage n.2 made by the participants in Slovenia

**Bronze hand pendant**



**The Bag**

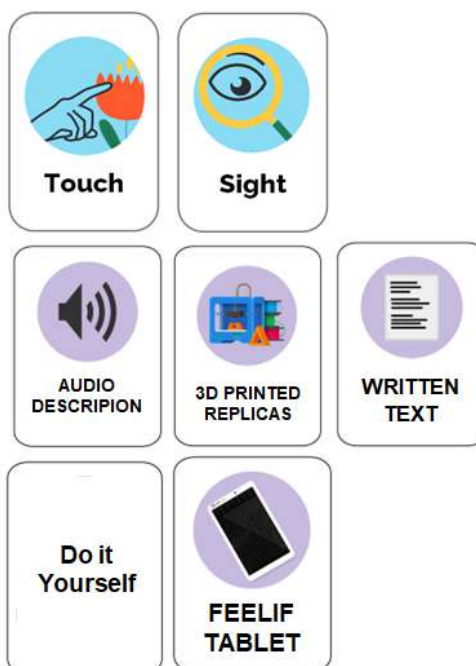


Figure 82: Collage n.3 made by the participants in Slovenia

**Melted bullets**



**The Bag**



Figure 83: Collage n.4 made by the participants in Slovenia



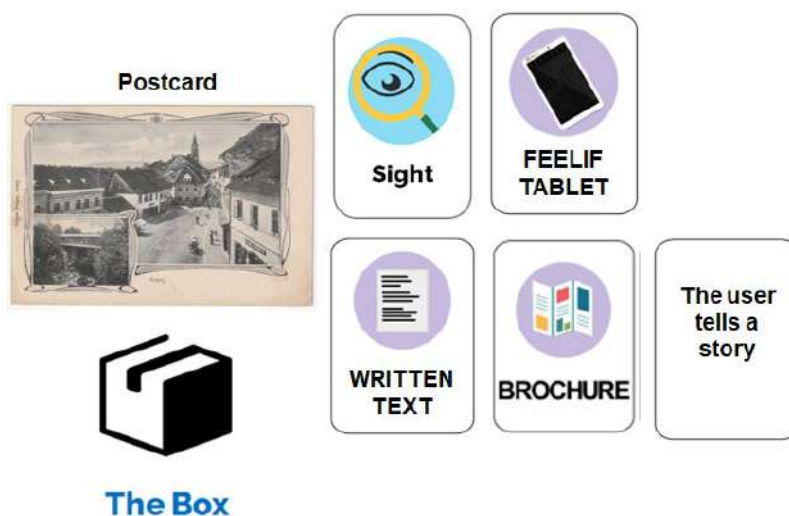


Figure 84: Collage n.5 made by the participants in Slovenia

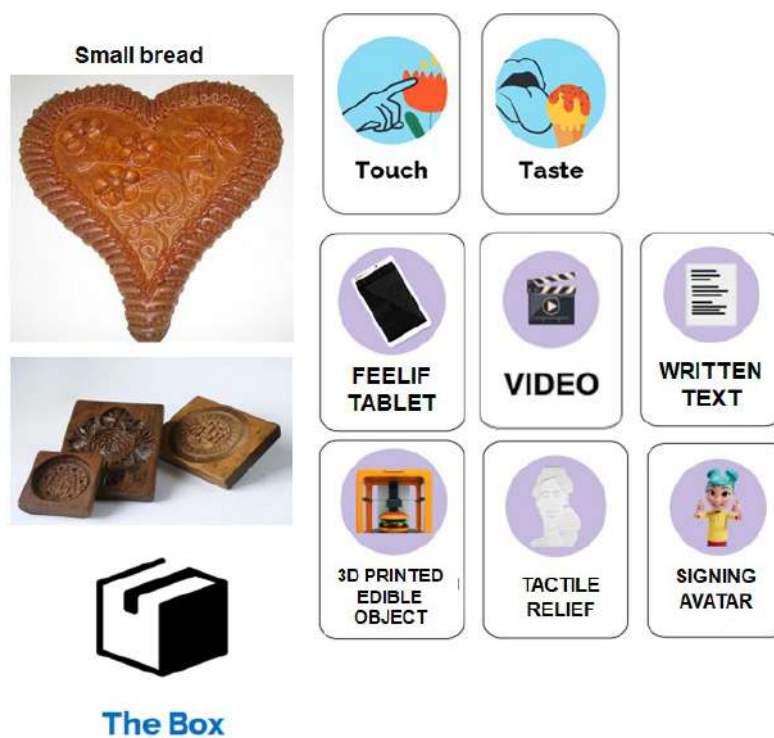


Figure 85: Collage n.6 made by the participants in Slovenia



Figure 86: Collage n.7 made by the participants in Slovenia



Figure 87: Collage n.8 made by the participants in Slovenia



Figure 88: Collage n.9 made by the participants in Slovenia



Figure 89: Collage n.10 made by the participants in Slovenia

The participants produced other combinations of cultural items and cards, but they were considered as less relevant and they were excluded from the elaboration of the envisioning scenarios.

### 3.3.4. Examples of envisioning scenario

**Scenario n. 1 – The Bag** - Catalog of the exhibition Mandolina, zvezde in Bled “Mandolin, stars and Bled”

Husband and wife loved to go to museums, but now that they no longer have a car, find it difficult to get there due to the remoteness. The solution is for the family to bring them a bag that includes, among



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other things, the Catalog of the exhibition Mandolina zvezda in Bled, which is accompanied by Feelif with music by Slovenska popevka and a list of songs. They can listen to music while browsing the original catalog. A wider variety of songs can be found on YouTube with the help of a list.

Because they can't see well, they use the OptiVid system. Simple diagram of dance, which is also included, helps them dance to the music.

Feelif also has a Feelif Piano app to learn a simple and well-known melody. They are helped by a recording of the song, with notes spoken out loud and visible on the keys of Feelif Piano app.

### **Scenario n. 2 – The Bag - Landscape photography of Carinthia region**

A volunteer brings the bag home to the elderly. Together they inspect all the items and find an artistic photograph of the landscape. The volunteer that knows how to use Feelif device, helps the elder feel the photography. The app reveals additional information about the author and the photography.

A disposable camera with instructions to take 5 photos in the next seven days is also included in the bag. The content of the photographs can be arbitrary, but it must be important for the author. The emphasis is on making photography as artistic as possible. The volunteer helps with understanding how the camera works and together they take some test pictures.

If the elderly person is blind, they can use the Feelif Camera application, which allows blind people to take photos and then feel the photos they have taken.

The elder returns the disposable camera to the museum, where the images are printed. The museum can also organize a competition for the best photograph, an exhibition, or organize a debate club about why this photograph was taken and what different things mean to us. The blind user, with the help of a volunteer that collects the bags, sends digital photos to the museum via Feelif tablet.

### **Scenario n. 3 – The Bag - Bronze hand pendant**

A volunteer and the elderly receive the bag to their home. Together they inspect all the items and find a bronze hand pendant replica. The bag contains a written text to learn more about old beliefs and grave offerings.

Blind users that have Feelif at their disposal, can touch the picture of the hand, and hear the audio narration.

In addition to the hand pendant replica, the bag also comes with accessories to assemble a personal amulet and keep it. These include wires, beads, design tools, and manufacturing instructions. The instructions are presented as an audio recording that you can play repeatedly.

Feelif also has an inclusive memory game, on the theme of old beliefs and amulets.

### **Scenario n. 4 – The Bag - Melted bullets**

The museum educators bring a box of objects from the museum to the nursing home. Residents of the nursing home are invited to the event, which is also attended by a museum pedagogue and 2 volunteers. Among the objects, there are also melted and the whole bullets. Residents can feel the difference between them. They can read about the course of the Isonzo Front in the vicinity of Bohinj and the life of a soldier and his ingenuity when he tried to survive - e.g., he recycled a can and made a tea strainer. They can hear sounds from the war, the audio description and they can also smell the gunpowder.





Through the pictures, we draw their attention to the consequences of the war on the natural environment, seeing the pollution of the soil, the transformed nature due to the shelling and the digging of ditches and caverns.

#### **Scenario n. 5 - The Box - Postcard**

A box of objects is brought from the museum to the nursing home. Residents of the nursing home are invited to the event, which is also attended by a museum pedagogue and 2 volunteers.

The box contains old postcards from various places. Blind and visually impaired people can touch the postcards and explore the contents on the Feelif device. The educator encourages the residents to share their travel memories and what impressed them the most. The dialogue emphasizes the purpose of communication and how communication has changed over time, as postcards have almost become extinct. The importance of the mail today in relation to the past can also be highlighted.

In the end, the residents are given blank postcards on which they can draw or write their most beautiful memory and share it with others. Blind visitors can draw the image using the Feelif Draw application and send it through e-mail in .png format.

Created postcards are then sent to the museum or to their loved ones. The museum can place the received postcards on display.

#### **Scenario n. 6 - The Box - Small bread**

A box of objects is brought from the museum to the nursing home. Residents of the nursing home are invited to the event, which is also attended by a museum pedagogue and 2 volunteers.

In the box, there is a replica of a wooden model used to bake honey bread for various occasions, and some honey breads. Residents can look at or touch the model as well as smell and taste the bread, while the educator plays a video about the origin of the small bread. The video is also accompanied by an avatar for the deaf people.

On the Feelif tablet, all residents can see different pictures of the models.

#### **Scenario n. 7 - The Box - Bobbin tape lace**

A box of objects is brought from the museum to the nursing home. Residents of the nursing home are invited to the event, which is also attended by a museum pedagogue and 2 volunteers.

The box contains various original lace napkins and a bobbin-making accessory with a partially made lace napkin on a paper base (pillow with basket, bobbin lace, pins). Residents can try and do a few lines with the help of a person who knows how to knit. Meanwhile, the educator tells them about the lace tradition, the importance of different schools, and the importance of manual skills, which are slowly becoming extinct.

Those residents who can't or don't want to bobbin can get distracted by assembling puzzles with a lace motif during this time, or play a multi-sensory memory game on Feelif, which is also accessible to the blind and visually impaired, on the topic of bobbin lace.

It is important to encourage cooperation between those present and for residents to start talking about their memories.

#### **Scenario n. 8 - The Box - Sheaves of dyed horse tail hair for weaving sieves, Stražišče near Kranj**



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A box of objects is brought from the museum to the nursing home. Residents of the nursing home are invited to the event, which is also attended by a museum pedagogue and 2 volunteers.

The box contains a sieve and horsehair. While the residents feel the grain and the sieve, the educator explains how they made the sieves. The educator explains to them how two different crafts and two different regions came together. With the help of the map of the two regions, uploaded on Feelif, residents can check how far the regions are from each other and how significant the integration has been.

There is also a manual where the user can learn more about the production of sieves, the manufacturing process, and the craftsmen who made the sieves. In the video, they can also see the testimonies of people who still know how to weave sieves. The video can be inspected with OptiVid app.

### **Scenario n. 9 - The Box - Transport box**

They bring a box of objects from the museum to the nursing home. Residents of the nursing home are invited to the event, which is also attended by a museum pedagogue and 2 volunteers.

Among the items, there is also a replica of a transport box for bees. While watching the box, they are listening to a recording of the description. When the box is opened, the sound player connected to the sensor starts to play the buzzing of bees.

On Feelif tablet, they can see a map of locations where bees were sent by Mr Jan Strgar. By pressing a certain key on Feelif they can hear anecdotes related to Mr Jan Strgar and can feel components of the transport box.

**Scenario n. 10 - The Screen** - Exhibition of documents and objects on percussion work in Slovenia in the first decade after the Second World War. Slovenci, slovenke, takoj na delo za obnovo domovine! » Slovenians, immediately go to work to restore the homeland! «

An elderly person who can no longer cope with the effort of walking around the exhibition decides to attend a guided tour of the exhibition at distance. When he registers for the event, he receives e-mails with music from this period, the contents of the letters in an audio file, and an interactive multi-sensory floor plan of the exhibition route, which he accesses via the application. The app tells him some important information, so he knows what to expect from the event. Before the event, he can get acquainted with certain stations and see pictures of awards, percussion badges, and works of art. He can also listen to letters read in the first person singular to make everything more personalized. The attachment also includes a video document, which he can view using the OptiVid application. You can also view a list of publications and locations where you can borrow them.

The event itself is actively monitored and cooperates with questions that arose during the visit or even before he became aware of the event. The guide himself, who leads a small group around the exhibition, explains the socio-political situation at the time, the striking work and lesser-known events. It encourages thinking about values and human rights.

In memory, after the event, he receives a badge in the mail.



### 3.4 Workshop with application partners in Portugal

The workshop took place on the 21<sup>st</sup> of June 2022 at the **Museu de São Roque**, in **Lisbon, Portugal**. The workshop lasted for 3 hours.

The workshop involved 5 participants, 4 of them SCM workers, two from the Museum of São Roque and the other 2 from day centres of the institution, and an external specialist in cultural heritage, curatory and mediation (Table 6).

The **Museu de São Roque** is open to the public since 1905, it is located in an ancient Jesuit professed house adjoining the Church of São Roque, an important monument in Lisbon from the 16<sup>th</sup> century. Its interior shows a great and rich variety of artworks, namely azulejos, (coloured tiles), paintings, sculptures, inlaid marbles, gilt woodworks, reliquaries.

Table 6: List of participants (application partners) involved in the workshop in Portugal

No.	Sex	Role	Museum
01	Male	Graduated in Tourism, post graduated in Tour guiding, Museum mediator.	Museu de São Roque, Lisbon, Portugal
02	Male	Phd in History and Geography, post-doctoral studies in heritage and material culture, works in a museum.	Museu de São Roque, Lisbon, Portugal
03	Male	PHd in History, Professor at the university, curator, specialist in history of mentalities, ideas and modern social practices.	Museu de São Roque, Lisbon, Portugal
04	Male	Sociocultural animator, works at a Day-Care Center for Elderly People	Museu de São Roque, Lisbon, Portugal
05	Female	Sociocultural animator, works with elderly people from day care centers.	Museu de São Roque, Lisbon, Portugal

The plan of the workshop was adjusted considering the context and the time available for the workshop. The activities were performed in the following sequence.

- 1) Presentation of the project
- 2) Presentation of the participants
- 3) Informed consent
- 4) Exploration of the technologies
- 5) Photo safari
- 6) Collage
- 7) Discussion and closing

The workshop began with the demonstration of technologies to the participants, during which the participants explored the technologies and discuss about its potential. After, the participants were



invited to join the Photo safari in the museum, where each one took photographs of two artefacts that they considered most interesting and appropriate for working with older people.

Then, the collage of cultural content/artefacts with the various technologies and meanings began, as well as the creation of future scenarios, adapted to the context of day centers and residential structures for the elderly.







*Figure 90: introducing the technologies to the participants during the workshop in Portugal*



*Figure 91: participants during the Photo-safari in the museum during the workshop in Portugal*

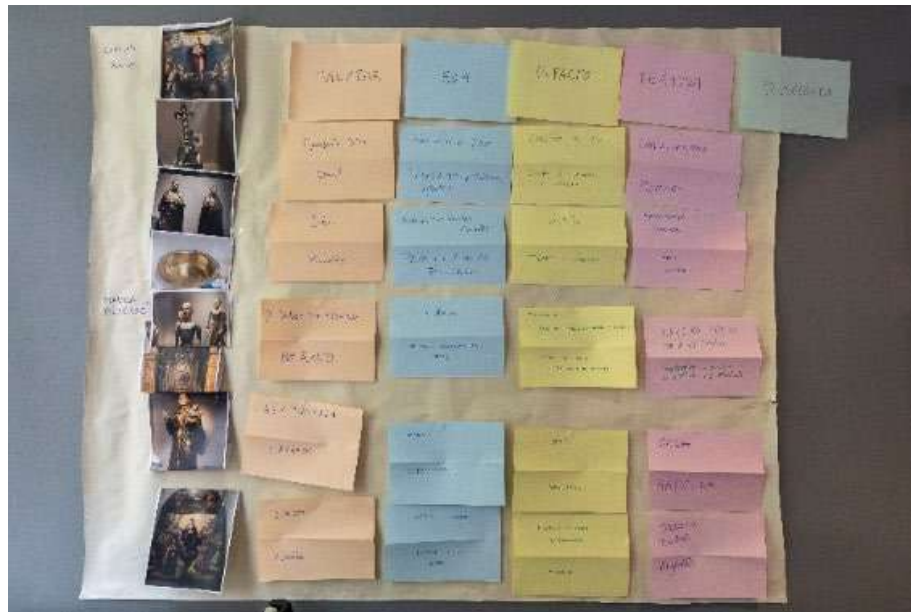


Figure 92: collage of the artefacts, senses, and technologies during the workshop in Portugal

### 3.4.2 Examples of contents/artefacts to promote

The participants collected a total of 8 artefacts from the museum (Figures 94 – 101). They were chosen for their historical significance, the multiplicity of interpretations they allow and the potential they hold to evoke memories and feelings to older people, thus providing a good museum experience.

In the selection of the pieces was taken in account their inner potential to present European cultural heritage in an easily comprehensible and attractive way and a vastly integrated approach on European Medieval and Modern culture. Technology will enable to bring artistic production located hundreds of kilometres away close to the user, and reveal how much, for instance, Portuguese, Austrian or Italian artistic production – and culture – have in common.





### Our Lady of Mercy

Portuguese painting from the 17th century representing The Virgin Mary crowned like a queen with the feet on a crescent moon. It is a symbolic representation of purity. The blue cloak is open and held by two angels. At her feet, on the left side, there are a king, a queen and other secondary figures from the nobility. On the right side, there are a Trinitarian friar, a pope and, behind, a cardinal representing the clergy. In the lower plane, there is a cripple with a naked torso arm supported by a crutch and a child. The painting represents the protection given by Our Lady of Mercy to all social groups.

It was chosen because of its special meaning in Lisbon, being related to Santa Casa da Misericórdia de Lisboa, an institution 524th years of existence that provides social and health cares to the people. This painting alludes to the ideas of protection, care and gives a clear picture of the relevance of Christianity in Europe's social History.

Figure 93: artefact n.1 selected by the participants in Portugal



### Pectoral cross/reliquary

This piece is composed of two different parts that were joined together at a time that is not known. The most interesting part is the pectoral cross from the 17th century, with seven alveoli in which were kept 14 relics of saints that were special objects of devotion amongst the French and the Italians. The sanctuaries where there are relics of the saints referred to, are arranged geographically along a line running from France to Jerusalem, so they may represent georeferenced points along a route of pilgrimage to the Holy Land which began in Artois, passed through Amiens, Paris, Lure, Nimes, Verona, Lucca, Mugnana, Orcia, Rome, Naples, Brindisi, Rhodes and ended in Jerusalem. So that piece is probably of French origin or made in order to appeal to that market.

The choice of this piece had to do with the idea of travelling, the experience of knowing different places and people and the possibility of materializing, keeping alive, the memories of a voyage.

Figure 94: artefact n.2 selected by the participants in Portugal



### **Sculptures of Saint Ignatius of Loyola and Saint Francis Xavier**

This pair of sculptures, from the 17th early century, probably reflects a classicist influence by the French masters settled in Portugal and a recovery of the great symbolic and devotional tradition of the High Middle Ages. The upholstery work is noteworthy, particularly the cover, which has plant motifs of Japanese influence in the case of saint Francis Xavier.

Saint Ignatius of Loyola was the founder of the Society of Jesus (1540), an important catholic order that had a relevant role in education, science and exploration and evangelization in the Orient and south America.

The sculptures were chosen because they evoke the idea of traveling, cultural exchange, globalization and cosmopolitanism, something very actual since Europe is a point of arrival for people from all over the world. They were also chosen because of their aesthetical characteristics.

Figure 95: artefact n.3 selected by the participants in Portugal



### **Lava-pés (Foot wash basin)**

It is a basin in silver from the 17th century used in religious ceremonies. The washing of the feet ceremony is full of symbolism. It represents the vocation of service, humility and equality that Christ's followers should practice. The tradition goes back to what became known as the Last Supper when Jesus performed this ritual for the first time.

The participants selected this piece for representing the idea of humility, sharing and equality. Also because it alludes to daily life and brings out childhood memories (e.g., the basin used by a mother or a grandmother to prepare food or wash the dishes or clothes).

Figure 96: artefact n.4 selected by the participants in Portugal





### Set of Roca and dressing images

Images primarily sacred, conducted in procession and dressed in cloth garments. Unlike the pieces that existed in the churches and to lighten the burden, the images were only partially carved, with finishing only in the parts that should be seen by the public, like hands, head and feet, and the rest of the body consisted of a simple slatted structure or hollow frame covered by fabric clothing.

These pieces were chosen for evoking the traditional processions and religious festivals, moments of joy and community coexistence. Also alludes to childhood games.

Figure 97: artefact n.5 selected by the participants in Portugal



### Model of the Chapel of São João Baptista

It is the model of one of the lateral chapels of Saint Roch's Church, fruit of the artistic patronage of the Portuguese king D. João V. Built by the cabinetmaker Giuseppe Palms, with the collaboration of Giuseppe Fochetti and Giuseppe Voyet in the painting and simulation of marbles and figures, and in the reproduction on copper of canvases by Agostino Masucci, the miniaturist Genaro Nicoletti, the model of the Chapel of Saint John the Baptist is an object of particular rarity in Portugal and of the greatest importance for the history of architecture because it witnesses the introduction a way of conceiving the projection of architecture, in successive stages of maturation, guided by the dictates of academic teaching.

This piece was chosen for its international importance as it is associated with a work of architecture and a collection of artistic objects of unparalleled value. The quality of the model, the materials used, painting techniques and detailing were also taken into account.

Figure 98: artefact n.6 selected by the participants in Portugal



### Sculpture of Saint Anthony

The Saint is represented with the traditional Franciscan habit, a black cassock richly ornamented with wide golden branches dotted with decorative grooves, a cord around his waist, sandals and his usual iconographic attributes: the open book on which a beautiful image rests of the Infant Jesus, who curiously clings to the hood of the Saint. He holds a golden ball in his left hand, symbolizing the sphere of the World, and a fragment of an incomplete cross in his right hand. The sober expression and good anatomical definition enrich the intrinsic value of this piece of imagery, characteristic of Lisbon's popular cult. Saint Anthony is considered one of the most traditional Portuguese saints, which explains in part why it was chosen by the participants. In Lisbon, the Santo Antonio Festival, combining religious celebration with extensive amounts of non-religious goings on, takes place in June, involving a large part of the city's population. He is very popular for being the saint of marriage and couples in love.

*Figure 100: artefact n.7 selected by the participants in Portugal*





### The Virgin in Glory surrounded by Saints

It is a large-scale 17th-century Portuguese painting originally located on the altar of the Holy Martyrs, covering and protecting an important collection of relics from the Church of São Roque. It is surmounted by the semi-circular painting "Adoration of the Mystical Lamb by the Saints", of later production.

The painting highlights the crowned Virgin, holding in her right hand the lily of purity and, in her left, the palm of martyrdom, surrounded by a glory of musician angels. There are two groups of saints: on the left, Santa Catherine, Apollonia and Agatha; on the right, Saint Barbara, Lucia and Claire. The semi-circular painting is formed entirely by female celestial figures, playing musical instruments.

This work was chosen because it alludes to figures of saints highly venerated in popular tradition, referring to local festivities, religious and social practices of rural and urban communities, evoking memories in the elderly population that must be recorded and preserved as they constitute an important intangible and material heritage.

Figure 101: artefact n.8 selected by the participants in Portugal

### 3.4.3 Examples of collage

For each selected cultural contents/artefacts, the participants made a collage with the five senses and some technologies available (Figures 102 – 109).

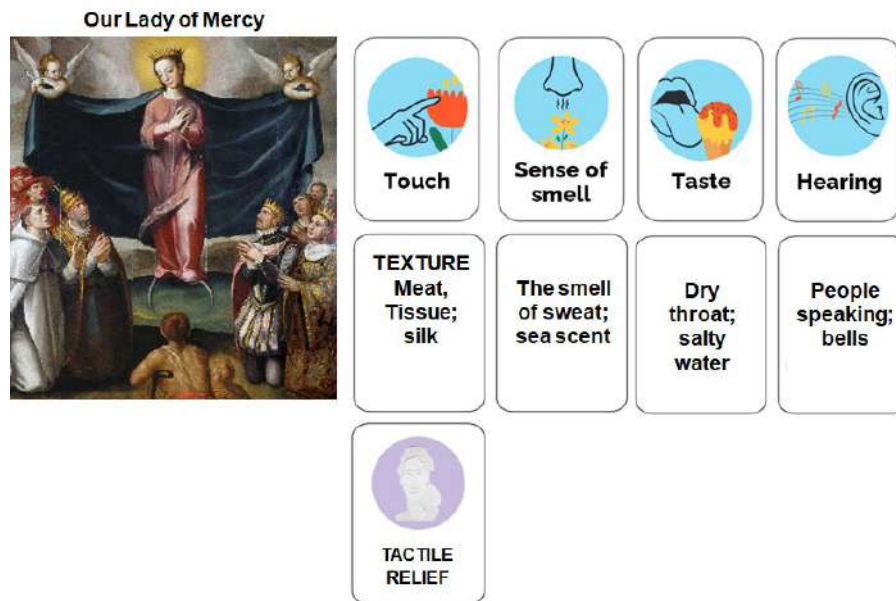


Figure 99: Collage n.1 made by the participants in Portugal



**Cross with relics of saints**








 <b>Touch</b>	 <b>Sense of smell</b>	 <b>Taste</b>	 <b>Hearing</b>
<b>TEXTURE</b> Wood	The smell of countryside and sea air	Cereal	Birds chirping
 <b>3D PRINTED REPLICAS</b>			

Figure 100: Collage n.2 made by the participants in Portugal

**Sculptures of Santo Inácio and São Francisco Xavier**



 <b>Touch</b>	 <b>Sense of smell</b>	 <b>Taste</b>	 <b>Hearing</b>
<b>TEXTURE</b> Mother of pearl (Nacre), Shells	The smell of countryside and sea air	Salt and sea	"Across the universe" (Beatles song)
 <b>FEELIF TABLET</b>			

Figure 101: Collage n.3 made by the participants in Portugal

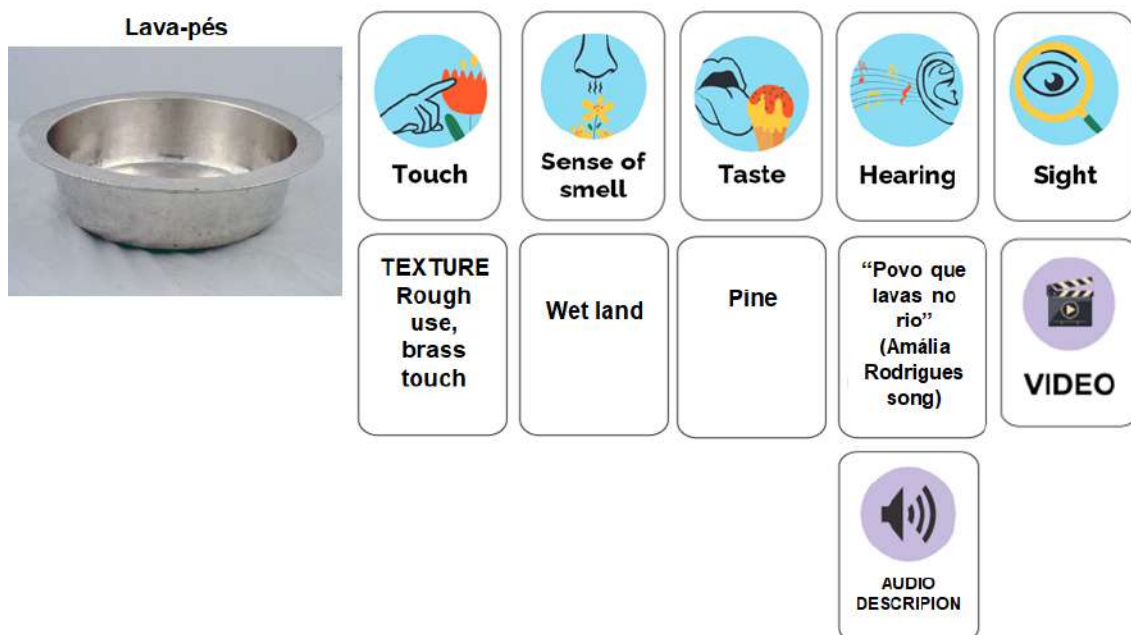


Figure 102: Collage n.4 made by the participants in Portugal

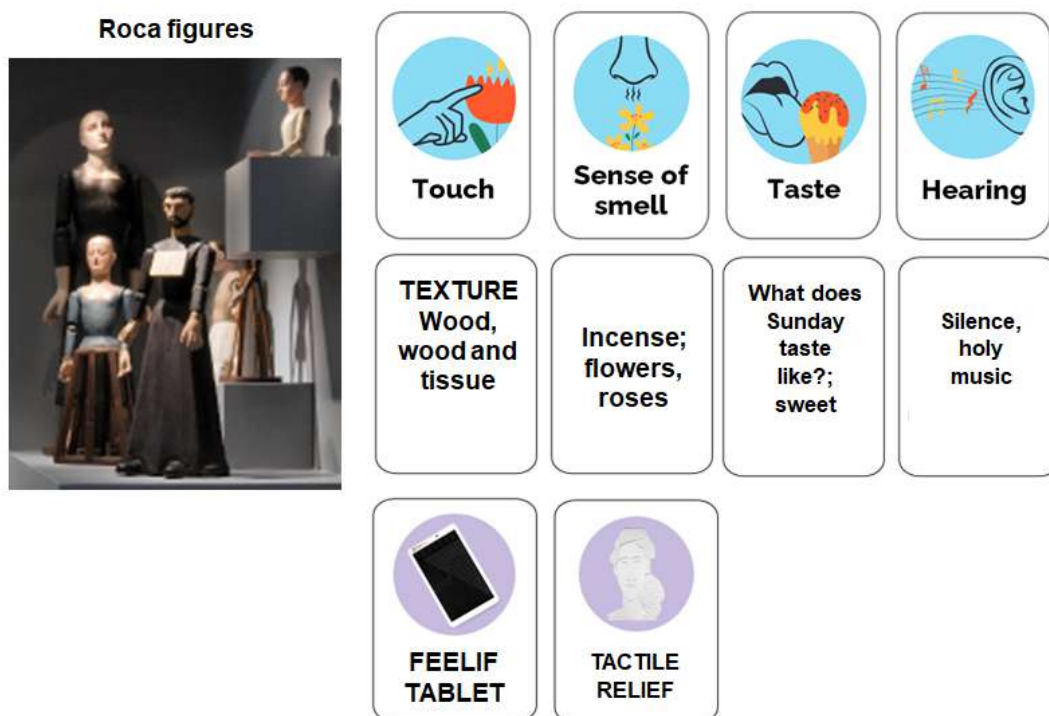


Figure 103: Collage n.5 made by the participants in Portugal

**Model of the Chapel of São  
João Baptista**

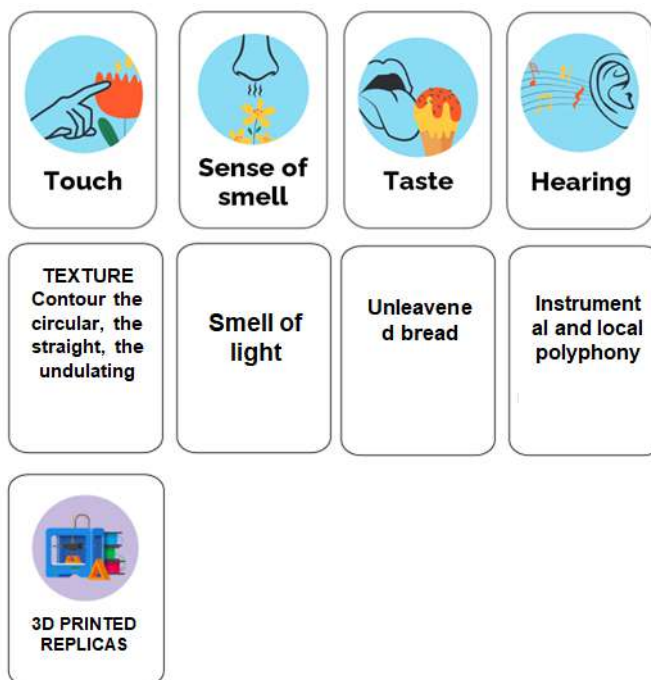


Figure 104: Collage n.6 made by the participants in Portugal

**Sculpture of Santo  
António**

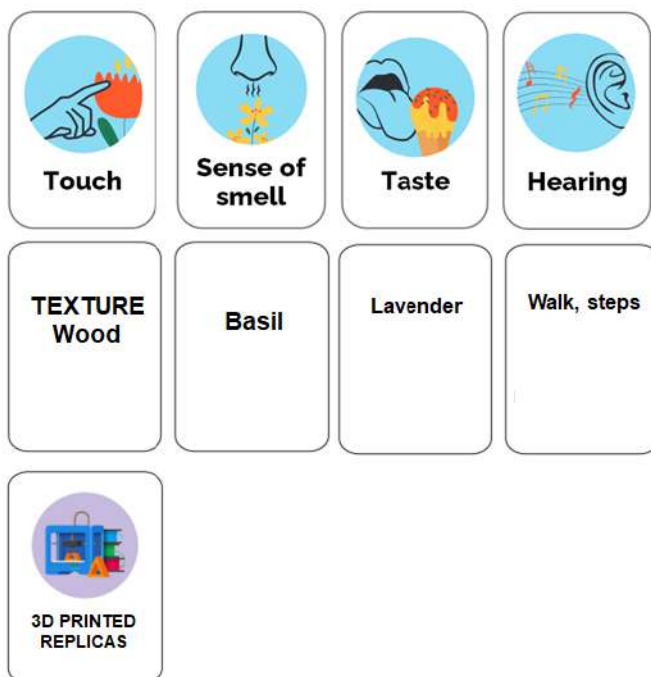


Figure 105: Collage n.7 made by the participants in Portugal

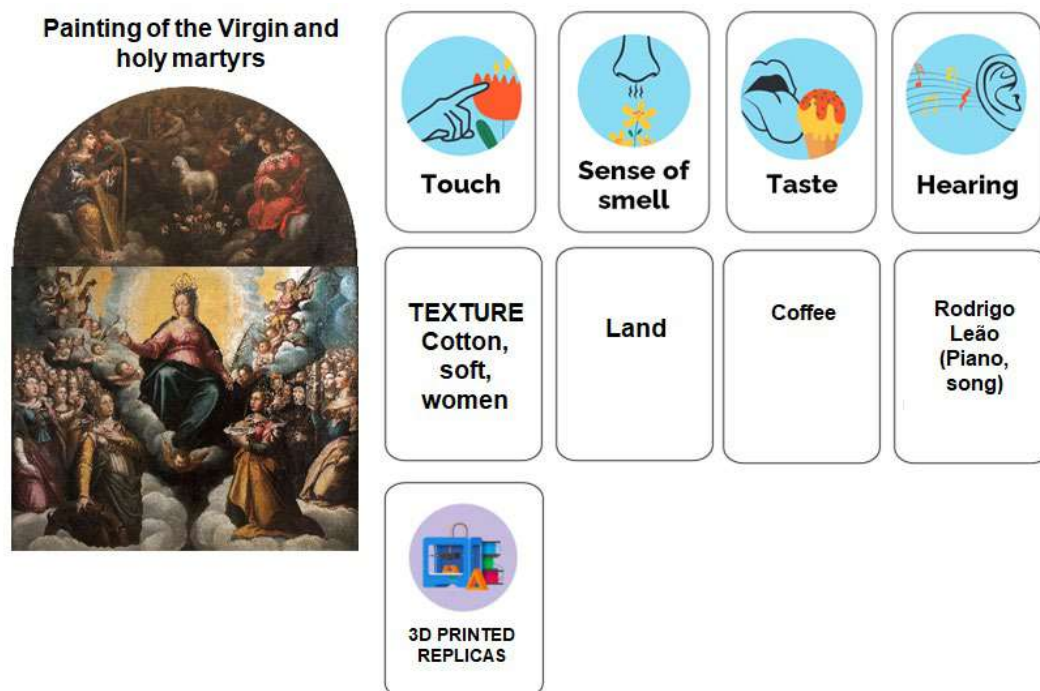


Figure 106: Collage n.8 made by the participants in Portugal

### 3.4.4 Examples of envisioning scenario

#### Scenario n.1 The Bag – Sculpture of Saint Anthony

The professionals of day-care centre organize an activity, after the older people arrive to the centre in the morning. The elders will get to know the history of Saint Anthony, it's cult and iconography, through a 3D replica of the saint. During this activity, older people will feel the texture of wood, the sound of the steps and the smell of basil that recall Santo Antonio's festivities. The participants will also share stories of their personal lives regarding the Lisbon festivities in honour of this saint or other traditional festivities, religious or not, they experienced.

#### Scenario n. 2 The Screen – Sculptures of Saint Ignatius of Loyola and Saint Francis Xavier

The professionals in the retirement homes will act as facilitators for older people who suffer from disability and no longer have the possibility to visit museums. That way, using technologies such as the Feelif tablet, recurring to explanatory videos and their pairing with sounds and smells, such as sea salt, older people gain knowledge about these figures, their voyages and contacts with other cultures, American and oriental cultures by that time, naval technology in the modern age. It's a way of travelling without leaving the place where people are.

#### Scenario n.3 The Bag- Painting of Our Lady of Mercy

The sociocultural animator brings to the day-care centre a bag with the tactile relief of the painting of Our Lady of Mercy. The older people, in small groups, can touch the relief and interact with the painting





while they hear evocative sounds. Together, they explore the details in the painting and discuss the possible hidden meanings of it. This way, older people get familiar with an art piece in a very close way.

#### **Scenario n.4 The Bag - Cross with relics of Saints**

The older people visit the museum and decide to take a bag with a 3D replica of the cross with relics of Saints. They can also pair the experience with explanatory videos of the figures, stories and places that the cross evokes.

#### **Scenario n.5 The Screen - Lava-pés (foot wash basin)**

Sociocultural animators that work in day-care centres make available technological solutions to show older people the piece, its characteristics, history and stories around it. Since the Lava-pés is an artefact with multiple uses and meanings besides its original religious function of washing the feet, the group discusses about the various purposes of the item and reflects on their life memories.

#### **Scenario n.6 The Bag - Roca figures**

The older people visit the museum and decide to better explore the story of the artefacts and for that they take a bag to the day-care centre. The bag has the 3D replica of a roca figure as well as the Feelif tablet with pictures and the story behind these artefacts. Fabrics, garments, wigs and other artefacts can be used to help visualize the use of these images. Also smells like incense and the sound of chants and bells referring to traditional processions can be used.

#### **Scenario n.7 The Bag – Model of the Chapel of São João Baptista**

A 3D replica of this model, combined with samples of materials such as pieces of rocks, metals, and tesseras, evokes the Chapel of Saint John the Baptist represented on this model.

#### **Scenario n.8 The Bag - Painting of the Virgin and the Holy Martyrs**

Older people from day-care centre ask their sociocultural animator to bring a bag related to the painting of The Virgin and the Holy Martyrs. The bag contains 3D replicas of personal accessories of the saints. These objects can promote the creation of stories about them. When paired with elements of texture and sound, older people connect to the stories of the represented saints.

## **4. Workshop with older people**

After the workshops with application partners were done, the outcomes were elaborated more with the older adults.

The following sections report the findings from the workshops with older people performed in Austria, Italy, Slovenia, Portugal and Switzerland. As mentioned before, the older participants worked on the ideas and scenarios proposed by the application partners, to provide their opinions about the design alternatives as well as to provide new insights to better meet their needs and preferences.



## 4.1 Workshop with older people organised in Austria

The Austrian Institute of Technology in collaboration with Hilfsgemeinschaft organised the co-creation workshop on the 4<sup>th</sup> of July 2022 at Hilfsgemeinschaft in Vienna, Austria.

The workshop lasted for 3 hours, and it involved 7 senior participants (Table 7) and 4 team members. The participants have different background and professions. They use smartphones every day, while the computer is used less frequently. They are frequent visitors of museums, galleries and other cultural sites, even if some of them consider the ticket price too expensive. The main need expressed by the participants to better access the cultural heritage is related to the use audio description and narrations, large easily readable texts, support to reach the museum location and navigate indoor and outdoor spaces.

Table 7: List of senior participants involved in the workshop in Austria

No.	Sex	Age
01	Female	67
02	Male	72
03	Female	62
04	Female	65
05	Male	69
06	Female	70
07	Female	65

The workshop was performed according to the common framework described in the section 2, but the design of the multisensory experience was based on the collage instead of the scenarios.

### 4.1.1 Ideas for the design of the multisensory experience

The discussion with the participants pointed out relevant issues and interesting suggestions to guide the design of the SDMs and the cultural experience.

When presenting the technologies of BeauCoup, the participants discussed multiple challenges that are specific to people with disabilities (e.g., a person with a very strong visual impairment moving so close to an artwork that the alarm goes off), and how some of these technologies could avoid such problems.

Some participants described that the social aspect of museum visits was very important for them. Visits to museums were mentioned being done with friends, family members or groups, and one participant in particular said that “it’s important who you’re going with”. Thus, they pointed out the need for designing multisensory experiences that enable the interaction with relatives and friends.



In this context, they also put a strong focus on the importance of a good guide for museum visits. One participant mentioned that the way they dress may influence their perception (e.g., having a well-dressed guide makes things seem more important).

Regarding the cultural contents to convey, a participant with a serious visual impairment emphasized the importance of a knowledgeable guide for gaining background information about the art pieces (e.g., why it was created, in which period, what the artist's goal with the piece was etc.), which were deemed crucial to understanding and appreciating it. Thus, the experience of the cultural heritage should include the provisioning of specific contents about the pieces of art, to support the needs for education and knowledge development.

Moreover, the participants placed a very strong focus on storylines and narrations, emphasizing that a good narration and explanation of the image is the most critical aspect and what allows them to "see a lot more of the art than my eyes can perceive". They mentioned that these explanations should ideally be simple and humorous, and that the chosen voice for narration is also critical ("With some voices, you just think 'I'm out of here' after 10 minutes" or "Having it be like an audio book, with a really great voice would be amazing!"). Reading long texts at a computer was mentioned as being challenging by participants with visual impairments, who greatly preferred having the texts read out to them.

To improve the accessibility of the heritage, the participants suggested a moving "museum of copies" as a main metaphor of the SDMs, where it would be possible to touch the artwork, using the replicas and the Feelif tablet to provide tangible representations of the artworks.

Even the participants with very serious visual impairments said that a tangible representation of a painting without narration included would not be very interesting for them, and cause them to miss a lot of important details like the expression, feeling of colours (for people who are not fully blind) etc. As an example, they mentioned that purely by touch, they would not have known that the 3D-printed female head was wearing a headscarf, having interpreted it as hair.

Hygiene was also an important aspect for some, with one participant in particular mentioning that she would never touch a public screen or tangible object since "so many other people already touched it". When it comes to tangibles, the choice of a fitting material per art piece would be preferred to simply having all printed out with the same material. As an example, they said that the painting of a rabbit by Dürer should for example be experienced by touching fur rather than some cold material. Having the material be close to the original or the topic of the art piece would be preferred.

Another relevant insight provided by the participants is related to the so-called "pre-visit agenda" (Falk & Dierking, 2016). The participants expressed their need for having material to learn about the museum and its collection in advance, and to organise the visit based on what kind of seeing aid would be useful in advance before visiting the museum.

Finally, participants mentioned that the cost of the services will be the most critical factor that will decide over the acceptance of the technologies (and their likelihood to be implemented by museums).

## 4.2 Workshop with older people organised in Italy

The University of Siena and the Fondazione Musei Senesi organised two workshops to involve the older people in the design of the project solutions. The workshop n.1 took place on the 22<sup>nd</sup> of June 2022 at



the day-care centre in Buonconvento, Italy. The workshop n.2 took place on the 30<sup>th</sup> of June 2022 at the nursing home in Monteroni d'Arbia, Italy.

Both the workshops lasted for about 1 hour and a half, and a total of 8 senior participants (Table 8) and two caregivers were involved. During the two workshops, the caregivers (the professionals of the day-care centre and of the nursing home) served as mediators to support both the team and the older persons during the activities.

During workshop 1, five people were present at the day-care centre, but only three people participated in the workshop. The other two persons were not able to actively take part in the activities: one person suffers from dementia, the other person is profoundly deaf and does not use hearing aids and sign language. So, besides our effort to engage them, they just attend without really getting hands on.

During workshop 2, five people were present and took part in the workshop activities.

Most of the participants have mobility impairments and mild hearing loss. They are not familiar with technologies, most of them use the smartphones only because it is a way to stay connected with relatives. All together they form a heterogeneous group with different backgrounds and habits: there are those who lived in the countryside, those who lived in urban contexts, those who travelled a lot for work or touristic purposes; there are those who live independently at home, and those who live in the nursing home. Also, the cultural interest and previous cultural experiences vary a lot among the participants.

*Table 8: List of senior participants involved in the two workshops in Italy*

No.	Sex	Age
01	Male	90
02	Female	91
03	Female	91
04	Female	78
05	Female	83
06	Female	85
07	Male	83
08	Female	82

The plan of the workshop was adjusted based on the characteristics of the participants and the time available. Specifically, the design of the multisensory experience was based on the selection of cultural contents/artefacts from the Photo safari, not on the envisioning scenarios. Thus, each participant was invited to select one photo, explain the reason for the choice and imagine a way to experience that content/artefact with a multisensory stimulation.





Moreover, the discussion of the scenarios and the exploration of the technologies were merged and performed at the end of the workshops: the team presented two technologies included in BeauCoup to introduce some envisioning scenarios to bring the culture to the people: the 3D printed replicas and the tactile relief.

The envisioning scenarios were presented not as structured complete stories but as general ideas to work on: for example, the idea to create 3D printed replicas of sculptures and tactile reliefs to exhibit in the day-care centred and nursing homes; the idea to organise a laboratory of storytelling inspired by the museum collection, recording the stories to preserve the cultural traditions; the idea to organise multisensory laboratory with hands-on creative activities focused on local traditions (e.g., making the bread, discovering and singing folk songs).



*Figure 107: participants selecting the photos to work on during the workshop n.2 in Italy*

#### 4.2.1 Discussion of the scenarios

The participants in workshop 1 found difficulties in understanding the benefits that the project offers to them through the proposed scenarios. Indeed, the contents/artefacts to bring to them are very familiar because some participants actually own some artefacts (e.g., the kneading trough, the bed warmer), and the cultural contents/artefacts are exhibited in the museum in the village where they live. So, they do not experience any barriers to see them and understand their value. In this case, the contents of BeauCoup seem to be more suitable for the new generation, to preserve and transmit the cultural traditions and stories.

While in workshop 2, the participants appreciated the goal of the project to bring the cultural contents and artefacts in the nursing home where they live permanently.

The two workshops represent an envisioning scenario in itself: indeed, it involved the participants in the exploration of the cultural heritage and in the dialogue about the cultural traditions, in recalling personal memories and sharing stories. This mode of interaction with the cultural heritage based on



dialogue and personal memories, has been envisaged by the museum staff in the previous co-creation workshop. Moreover, they appreciated the possibility to record their stories, serving two purposes: first of all, to practise their reminiscence, and also to preserve the traditions and transmit them to the future generation.

One participant during workshop 2 mentioned that, besides the limitations due to mobility issues and the recovery in the nursing home, her cognitive functioning is still high, she needs to be active and maintain her memories. Thus, she interprets the scenario as a way to support this need.

The participants appreciated the possibility to experience the artworks with diverse senses: while in the museums you can only see the artworks and hear the description provided by the museum guide, the scenarios of BeauCoup allow the people to experience the art through touch, smell and taste.

#### 4.2.2 Ideas for the multisensory experience

The participants were invited to select the cultural contents/artefacts to work on. Most of the selected artefacts are from the collection of the Museo della Mezzadria (Sharecropping Museum) because they represent familiar objects that immediately recall personal memories.

During this activity, the participants spent a lot of time telling stories and explaining cultural traditions which are lost over time. They spontaneously started the dialogue among them and with the team to share memories and points of view.

- **Imaginary of the handweaving loom**

The participant selected the photo of the hand-weaving loom exhibited in the Museo della Mezzadria (Sharecropping Museum). The photo was combined with the sensory card of the jute, as an example of material similar to the hemp.

The participant shared her childhood memories: she learnt how to use the loom to create the textile with the hemp by observing her mother and aunt. Her family took care of the entire process, from the planting of the hemp, to the yarn making, to the weaving of the textile.

In this case, the multisensory experience can be a tactile exploration of different fabrics, ranging from the rough hemp to the soft cotton.

- **Imaginary of the farm workers**

Two participants selected two photos that are related to their life: the cart with the everyday objects of the farm workers, and the picture of the farm workers. Indeed, the two participants were farm workers, and they used a similar cart to carry the hay, the animal feed, and demijohns with water and wine.

The participant in workshop 2 engaged in a discussion with the other participants about the diverse life and habits between the older generations and the new generations.

The multisensory stimulation can provide different fragrances related to the things which were carried in the cart or related to the work in the fields (e.g., the fragrance of the wine, the wet hearth, the flowering wheat).

In addition, the participant in workshop 1 pointed out that it is important to understand the conditions of the farm workers at the beginning of the 19th century: the participant started a discussion about the critical situation characterised by poverty, hard work under unsafe working conditions and injustice.



- **Imaginary of the bread making**

One participant in workshop 1 and one participant in workshop 2 selected the photo of the kneading trough, combined with the sensory card of the wood. The participants shared their memories about the local traditions of bread making: the bread was kneaded at home using the kneading trough, and then all the village citizens used the same oven to cook the bread. The participants remembered the fragrance of the freshly cooked bread. At that time, the kneading trough was one of the essential objects to have at home.

Thus, the multisensory experience in this case is intended to stimulate the imaginary about old traditions, using the taste and the smell of bread.

- **Imaginary of the housework**

The participant selected the photo of the couch for the laundry because it reminds her of her childhood: coming back home from school, she helped the family with the housework: cleaning the laundry, weaving the fabric and so on.

- **Imaginary of religious ceremonies**

The participant selected the photo of “Ecce Homo” by Rutilio Manetti because it represents the religious ceremony the participants attended several times when she was young. The other participants commented that in Italy there are various local traditions of religious ceremonies, such as the religious processions. They are very peculiar cultural events that involve the entire city or village, and they attract the tourists.

The experience of attending such ceremonies is already multisensorial: you can perceive the smell of candles and flowers; you see the coloured decorations of the churches and sacred images, made of flowers and textiles; you see the people wearing traditional clothes during the procession; you hear the sacred chants. They are emotionally engaging events.

### 4.3 Workshop with older people organised in Slovenia

Feelif organised a co-creation workshop that took place on the 21<sup>st</sup> of June 2022 at the Dom Danice Vogrinec Maribor (retirement home) in Maribor, Slovenia.

The workshop lasted for 3 hours, and it involved 4 older persons (Table 9) and 3 team members.

The older participants have different background and previous professions. Two of them use computers and smartphones every day, while the other two participants never or rarely use computers or smartphones.

In the past they were used to visit museums, galleries and other cultural sites. They expressed the need for some tools to support the museum visit: audio narrations and descriptions, tactile exploration of artworks, tactile map to navigate the museum space as well as support to reach the museum location. The main concerns are related to the lack of information about what museums and cultural events can offer, and the cost of the ticket to visit the museum that represents a barrier. In particular, one participant stated that “if you live in the country side, there was no time and money for this”.



Table 9: List of senior participants involved in the workshop in Slovenia

No.	Sex	Age
01	Male	84
02	Female	73
03	Female	84
04	Female	78

The workshop was performed based on the co-creation framework described in the section 2. To shorten the discussion of the scenarios, the participants worked only on a selection of five scenarios to focus on. The remaining five artifacts/contents, for which less interest was shown, were only briefly presented.

#### 4.3.1 Discussion of the scenarios

Out of the 10 scenarios planned for the workshop with the elderly, we chose 5 of the most engaging artefacts/contents, based on the interests of participants.

When asked directly if they liked the scenario, the participants had difficulty expressing a more complex opinion than simply saying that they liked it. That's why we helped them with sub-questions and ascertained their opinions. When asked if they would change any of the scenarios, they answered that it is difficult to give an opinion on this right away, since the topics and technologies presented are all new to them.

In any case, it is important for them to be able to feel the objects presented, especially the horsehair. As for smells, they didn't think it was very important to include that sense as well.

#### 4.3.2 Ideas for the multisensory experience

We discussed with the elderly about what The Bag and The Box would look like, using samples of different materials. It turned out that one of the elderly people used to work with materials as a profession, so he had expert insight into the quality and use of materials. They liked wood, felt and jute among the materials. The sponge would have been fine, but this one, it is not rough enough. Some of the materials seemed too thin. Cloth is too thin and not durable, neither is felt. Leather was the most liked by all the elderly people, so they suggest it for the bag.

- **The Bag**

We told them which items were intended to be put in The Bag, and they agreed.

We asked them to think about the shape, weight, and material of the bag. In their opinion, the bag should be made of light but durable material. It should be resistant to rain and impact. It should be easy to clean. It should be easy to open, using a zip or a Velcro strap. After a short deliberation, they decided to go for a zipper because it is more durable. The bag should have at least two compartments, ideally with a central zipped pocket and two compartments, each on one side. The bag should have





one shoulder strap, which should be made of soft material that does not dig into the shoulder. It should be large enough to hold at least an A4 sheet. In terms of shape, they envisage it to be wide rather than narrow.

- **The Box**

Again, we told them what the box would hold and helped them to think with sub-questions, especially how they imagined the space where the box would sit. We also talked about possible obstacles and limitations of space, aisles, door openings and lifts.

In their opinion, the space would need tables as well as chairs. Nursing homes also need to have lifts, so they suggest limiting the weight of the box to the capacity of the lift. It must also be narrower than the door. The box should be made of durable material, and it would be good if it were on castors. Inside, it should have flexible compartments to adapt to needs. As far as their nursing home is concerned, they think the most suitable place would be where they have occupational therapy, and the library is always open. They have a television on each floor so they could also play video content on it.

But the recreational activities should be planned in advance in order to prepare all the resources needed and ask for technical support if needed.

## 4.4 Workshop with older people organised in Portugal

Santa Casa de Misericórdia de Lisboa organised a co-creation workshop that took place on the 29<sup>th</sup> of June 2022 at the Museu de São Roque in Lisbon, Portugal.

The workshop lasted for 2,5 hours and involved 7 participants (Table 10), with ages between 77 and 88. Four of them often visit museums and frequent cultural spaces such as libraries, concert halls, etc. The other three have a different background, a lower level of education and different cultural habits. They visit sometimes museums with the daycare center. All the participants use basic technologies, in particular smartphones. Despite the average age of 82,4 years, although they have some difficulties with locomotion, vision and hearing, they do not have specific deep needs.

*Table 10: List of senior participants involved in the workshop in Portugal*

No.	Sex	Age
01	Female	86
02	Female	88
03	Female	77
04	Female	80
05	Female	79
06	Female	84



07	Male	83
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Compared to the common co-creation framework, this workshop introduced a new activity to present the cultural contents/artefacts selected by the museum staff in the previous workshop: they were presented to the participants directly in the museum during a brief visit. This visit served to stimulate the interest of the older people participating in the workshop.





#### 4.4.1 Ideas to design the multisensory experience

For each presented artefact of the museum collection, the participants imagined stimuli for the different senses, along with possible technologies to support the cultural experience (Table 11).



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It is important to note that the workshop was held during the month of popular festivals in honour of Santo António in Lisbon, which stimulated the interest of the participants in the artefacts related to this theme. The choice of elements associated with artefacts and technologies represents this positive view of the festivities and the pleasure of contributing to bring culture to older people who have limited mobility.

Table 11: List of multisensory stimulations envisaged by the participants in Portugal

Artefact	Taste	Sound	Smell	Texture	Technology
Our Lady of Mercy painting	Sardines	Marchas Populares ( Santo Antonio's festival popular parade)	Carnations	fabric	Feelif
Cross with relics of the Saints	Bread; water; orange; Serra da Estrela cheese	Running water; Bach; sacred music; romantic music	Wood; rosemary and dried herbs; incense; rosemary	Wood; softwood; wood; plastic	Feelif; tactile; 3D models; Tactile Multimedia Guide
Lava-pés	Rosemary;	Vibrating sound and Vangelis;	Metal	Silver or precious metal;	Tactile Multimedia Guide
Model of the chapel of Sao João Baptista	Very sweet;	Melody from Beethoven;	Rosemary;	Crystal;	Tactile application;
The figure of Santo António	Sardines and green wine; a slice of bread; basil; chocolate	Sea waves hitting the sand; bells ringing; Sea; sacred music	Rosemary; basil; plaster; wood	Ivory; noble wood;	Tactile; application;
Painting of the Virgin with the holy martyrs	Traditional foods related to religious feasts.	Traditional carols and other songs related to religious feasts.	Giestas (flowers)	Linen	Tactile relief

## 4.5 Workshop with older people organised in Switzerland

terzStiftung organised a co-creation workshop that took place on the 28<sup>th</sup> of July 2022 in Berlingen, Switzerland.



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The workshop lasted for about 2 hours and a half, and it involved 3 participants (Table 12) and 2 team members.

Two participants use hearing aids. The participants are used to visit museums, galleries and other cultural sites, but they seldom use tools like mobile apps for guided tours or digital touchscreens in the museums. They expressed the need to have descriptions and narrations set to sound, visual enhancement of photos and videos, tactile tools to navigate the spaces and explore the artworks.

Table 12: List of senior participants involved in the workshop in Switzerland

No.	Sex	Age
01	Female	75
02	Female	82
03	Male	77

The materials used during the workshop (Figure 114) were created by terzStiftung, because the workshop with application partners was not organised in Switzerland.



### Pile dwellings

It was only after the last ice age that the Swiss Plateau became more densely populated by pile dwellers, especially the areas around the lakes.

- The artifact is a section of an original pile, it is about 3000 years old
- The video shows a pile dweller regatta
- At the same time in Egypt lived the first pharaoh, Menes



### Treasure of gold of Erstfeld

The gold treasure from Erstfeld is little known but it is considered the most important Swiss find from the Latène Period (LTB). It dates from around 300 BC and it was found in 1962 near Erstfeld in the canton of Uri. It is one of the most important testimonies of Celtic goldsmith art.

- Picture of the 7 gold rings
- Only by chance not blown up and destroyed



### Senntum-Painting (original Postcard)

paintings about the life of alpine herdsman and dairyman

This art of painting developed in the 19th century in the rural areas of Appenzell and Toggenburg. Clients of the *Senntumsmalerei* were alpine dairymen and farmers who wanted to have their world represented. The focus is on cows, which have been of central economic importance to eastern Switzerland since the Middle Ages, the alp, the alpine journey, and the Appenzell and Toggenburg farmhouse.



### Hermitage of Niklaus von Flüe (engraved illustration)

Niklaus von Flüe, Nikolaus von der Flüe or Brother Klaus (born in 1417 in Flüeli, Obwalden; died in March 21, 1487 in the Hermitage of Ranft). He is considered the patron saint of Switzerland and was canonized in 1947.

- Engraving of the pilgrimage site of Niklaus von Flüe
- Alternative to the big engraving could be a "Bäti" (50 beads, not the regular rosary with 59 beads)
- Symbol of someone who went from being Saul to Paul. Provided for peace. Sought simplicity.
- Famous Brother Klaus prayer "The prayer of Brother Klaus".

Figure 111: Materials used during the workshop with older people organized in Switzerland



Figure 112: participants working with the sensory cards during the workshop in Switzerland



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#### 4.5.1 Ideas to design the multisensory experience

The participants discussed the contents/artefacts by sharing their thoughts about the value of such items, by imagining connections with their personal experience and other elements of the cultural heritage, and by envisaging ways for experiencing the heritage.

- **Pile dwellings**

All participants can immediately make a reference to pile-dwelling settlements from their neighborhood. Someone also remembers a TV series on Swiss TV in which a family lived like pile dwellers for a summer. The series could serve as a hook for the museum visit. Opinions differ about the original pile ("very valuable, 3000 years old" to "worthless, it's just a chunk of wood").

Experiences in connection with life above and with water are discussed and evaluated as a very valuable extension also for people without sensory impairments.

- **Celts**

Two participants express the wish to be able to explore the artifact by touch. For this purpose, a 3D model could enlarge the fine goldsmith's work and thus make it easier for everyone to experience.

- **Senntum painting**

The postcard awakens many associations in all participants and leads to animated conversations about life on the alp. A piece of Appenzeller cheese triggers further discussions about the incomparable taste of this cheese, but also about the hard conditions under which the cheese is produced. The video about the Alpabzug is very much appreciated: "That's exactly how it is!". Someone suggests accompanying it with the typical music (original Appenzell string music with dulcimer, two violins, cello and double bass).

To promote these cultural contents/artefacts, the participants suggested using the Feelif tablet for blind people, video with OptiVid system for people with visually impairment, and the tactile relief for the "Pile dwellings" and the "Treasure of gold", in this latter case to especially experience the details.

## 5. Results and discussion

In this section, we reflect on the insights gained during the workshops to guide the design of the SDMs. From the heterogenous corpus of data, we can identify common and similar ideas, as well as some "out-of-the-box" proposals on the cultural contents to bring outside the museum (see section 5.1), on the SDMs (see section 5.2) and on the technologies to enable the cultural experience (see section 5.3).

### 5.1 What to bring outside the museums

Considering the selected cultural contents/artefacts and the discussion about their value, we can identify the following elements to promote through the project:

- the well-known masterpieces of the museum collection, as well as curious artifacts which seem unusual and wired, to stimulate the curiosity and interests of the people;
- the "invisible collections" conserved in the museums' warehouses that cannot be exhibited to the public (e.g., due to maintenance, lack of exhibition spaces, strict requirements for their preservation);



- the artefacts that have the potential to stimulate emotions, such as curiosity, fun, nostalgia, serenity, surprise.
- the artefacts that have the potential to stimulate the reflection and dialogue about relevant themes (e.g., gender balance in art), acting as means for the intercultural and intergenerational dialogue;
- artefacts related to old traditions, habits, events and know-how which are at risk of being lost over time, by combining tangible and intangible heritage;
- the value of the artworks that relies on the complexity of their representation and production, covering different techniques and skills of the artists or the artisans.

## 5.2 How to enable the engaging and accessible cultural experience

During the workshops, the participants provided different conceptualisations of the Service Delivery Models as means to enable an engaging and accessible experience of the cultural heritage.

### **The Bag can be:**

- a set of tools addressed to tourists, to support the planning and the visit on-site;
- a set of gadget and souvenir to remember the museum visit and share the memory with other people;
- a set of tools to bring to the users at home, for enabling do-it-yourself creative activities;
- a set of stimuli to inspire the person to contribute to the “participatory museum”, for example by recording stories or taking photographs which will be exhibited in the museums and in other cultural contexts
- a collection of “ingredients” selected by older people to inspire the creation of new pieces of art and performances.

### **The Box can be:**

- a transparent backpack acting as a museum display, that is carried around in the city and suburbs by a museum educator;
- a set of tools implemented in the museum, to make the museum on-site visit accessible and inclusive for diverse audiences;

### **The Screen can be:**

- a virtual exhibition that connects different pieces of art from diverse museum collections, connected around a common theme;
- a virtual guided tour during which the remote visitors explore the museums with the guidance of the museum educator, with the possibility of interacting with the other visitors in real time;
- a multimedia catalogue of a temporary exhibition.

In addition to the above-mentioned metaphors, the participants helped us in the identification of some common themes and requirements which are transversal to all the three SDMs.





- *Personalisation of the tools to experience the heritage*

In most cases, instead of a unique solution for a specific target group, the participants expressed the interest towards multiple channels and tools that can be selected by the user based on their needs and preferences. Indeed, in a life-long perspective, personalisation is a key feature to address the changing needs and abilities of people in the different life stages and contingent situations (e.g., temporary impairment, period of hospitalisation) (Giraldo et al., 2022).

- *The importance of the storytelling*

Narration was expressed as very important for several reasons. First of all, it is a way to stimulate the interest in the visitors towards the heritage, and to convey the meaning and value of the heritage, as every piece of the museum collection has an unending amount of history and context behind it; missing it would feel like missing half the picture.

Having a good story makes the art work more memorable, but a proper balance is needed to avoid providing too much information which are difficult to follow and understand.

Moreover, the storytelling is relevant as a way to preserve, and practice, the reminiscence of the visitors. Indeed, some design ideas are based on the collection of stories of past events, memories of personal experiences, local traditions and know-how which are at risk of being lost. In addition, some participants conceived the collection of the stories, as a sort of oral history and tradition, as a means to activate intergenerational dialogues among older people and the youth.

Last but not least, the narration is of paramount importance to support the experience of an artefact through other senses, especially in the case of tangible replicas of art works.

- *Augmenting the artwork*

The participants envisaged different creative ways to “augment” the heritage, considering both paintings and other artefacts: for example, we can experiment with sounds, fragrances and graphic visualisation of moving figures to make the painting “alive”.

It is acknowledged that the project does not want to replace the visit in the museum and the contemplation of the original artworks which are very peculiar experiences. Rather the project aims to provide a different cultural experience that can take place in other contexts (e.g., homes, nursing homes, day-care centres, hospital etc.), and using tools to enable a multisensory inclusive experience.

### 5.3 How to improve the technologies for a better user experience

The comments by the participants provide several insights to understand the possible benefits of the technologies (both from the museum’s point of view, and from the seniors’ point of view), as well as opportunities for their improvement.

The opinions of the participants are included in Table 13, categorised in terms of strengths (what the participants LIKE), weaknesses (what the participants DISLIKE), and ideas to better meet participants’ needs and desires (what participants WISH).

Notably, from the integration of the results some contrasting opinions and divergent perspectives emerge. These issues point out the need for a further investigation of the factors affecting the acceptance and adoption of the technologies. Tailored functionalities and personalisation will be explored during the project as strategies to meet diverse users preferences.



In addition to the comments included in Table 13, we can identify some general recommendations and suggestions to consider during the design of the SDMs:

- having a way to easily take information and bring it home to one's own PC (e.g., by having a USB stick) was seen as promising;
- smartphone screens are too small to properly allow people to appreciate the artworks with their details and compositions, during a virtual remote exploration of the museum collection;
- in some cases, the participants prefer to rent a tool instead of buy it (e.g., the objects included in the bag for tourists), and the cost of the technology is a critical factor affecting the user acceptance;
- the materials to produce the objects (e.g., 3D printed replicas, the bag to collect the tools) should be carefully selected considering their mechanical properties and life span, in addition to the hygiene issue.

Moreover, some participants expressed concerns about their ability to use unfamiliar technologies. Thus, the improvement of technologies should make them easy to learn, set up and use by the user, without the need for support by other people.

Table 13: Comments about the technologies, collected during the different workshops

Feelif tablet	
What the participants LIKE	<ul style="list-style-type: none"> <li>- It is an easy way to interactively and independently discover a picture, accessible also to the blind and visually impaired people.</li> <li>- It provides the exact descriptions of the images.</li> <li>- It is useful for different audiences, not only for blind people.</li> <li>- It is entertaining and activating.</li> <li>- The possibility to zoom in the pictures to explore the details.</li> <li>- The possibility to associate sounds and audio narrations of short stories about the artefact.</li> <li>- Very good descriptions, it allows you to lean back and enjoy.</li> <li>- Tangible surface structure helps with orientation.</li> <li>- The benefit of this technology is easily understandable.</li> </ul>
What the participants DISLIKE	<ul style="list-style-type: none"> <li>- Concerns regarding its convenience for older people, unless someone is there for supporting the user: "too complicated procedures with clicks... one click, two clicks... they don't remember, they don't press precisely anymore, so we would mix everything up".</li> <li>- It is developed only for a specific target group, while a more inclusive solution could be preferred.</li> <li>- Participants seemed to dislike certain parts of the presentation.</li> <li>- Questions about the difference between the Feelif solution and the technology already covered via voice-over.</li> <li>- The "artificial" voice; the synthesized voice is unpleasant – would need better intonations.</li> <li>- The buttons at the bottom were difficult to find, the participants suggested making them more tangible.</li> <li>- It was very unclear how a general explanation of the painting could be played, before exploring the details of the image.</li> </ul>

	<ul style="list-style-type: none"> <li>- People without visual impairments found the tangible surface distracting.</li> <li>- Some people with visual impairment said it doesn't help since everything feels the same.</li> <li>- Even the best explanations cannot make irony or humor visible at a glance.</li> <li>- The participants did not understand how the voice could be turned off again: when the tablet started reading something, participants struggled to find out how they could interrupt the process besides starting a different playback.</li> <li>- It is a solution to implement in the museum, instead of using it at home: a participant expressed worries that she doesn't expect to be very motivated to interact with art while at home since there are so many distractions there, which is why she prefers to physically go to a museum as this 'forces' her to interact with the art pieces and removes these distractions.</li> </ul>
What the participants WISH	<ul style="list-style-type: none"> <li>- Embossed buttons on the grid could be used as information buttons about the picture.</li> <li>- Different vibrations to convey different contents and information, through a qualitative differentiation of the tactile stimuli.</li> <li>- The possibility to replace the speaker with a recorded voice.</li> <li>- With a double-click campaign, we can also display video content.</li> <li>- Individual foils/grid for each displayed image; foil/grid should be variable or adjustable individually.</li> <li>- The possibility to use the Feelif app also on a smartphone.</li> <li>- Support for more paintings: support for many different artworks and easy way to replace one artwork with another. The museums could sell specific foils/grids for the most important art pieces that can be placed on top of the tablet and then removed again.</li> <li>- Idea: the content is delivered when you purchase a yearly subscription to museum.</li> <li>- Making paintings downloadable – but would it be for free? And this would require having a tablet.</li> <li>- Combining it with OptiVid could be useful – but then it would no longer be the original technology.</li> <li>- How is it to be listened to when many different paintings have to be looked at? Isn't that tiring, because it takes so long with each picture until you know what it is about.</li> </ul>
<b>OptiVid</b>	
What the participants LIKE	<ul style="list-style-type: none"> <li>- It can be adapted for different needs by setting the different options.</li> <li>- It is easy to use.</li> <li>- The possibility to save the individual settings.</li> <li>- Easily integrated into everyday life, usable in multiple situations.</li> <li>- Easy to use via URL/in the browser.</li> <li>- Easy to integrate into the digital screens in the museum.</li> </ul>

What the participants DISLIKE	<ul style="list-style-type: none"> <li>- The need for support by someone who can set up the system and help you.</li> <li>- Concerns about the level of difficulty in defining the appropriate settings.</li> <li>- Maybe it could be complicated for users that have low familiarity with technology.</li> <li>- Too many options can make operation difficult or impossible.</li> <li>- Avoid the risk of having to change processes and controls for updates.</li> </ul>
What the participants WISH	<ul style="list-style-type: none"> <li>- To be able to correct the images, not only the videos.</li> <li>- Better image quality: some participants felt like basic changes seemed to reduce the resolution or introduce artifacts into the image.</li> <li>- Audio-input/assistant: a way to interact with the tool via voice commands rather than a visual interface.</li> <li>- That all end user devices support these functions.</li> <li>- Understandable and perceivable information about the different options.</li> <li>- Resize just a part of the image, like a screen magnifier in Windows.</li> <li>- Setup focused on just one art piece – little distractions in the image: working with static images, the tool could be more finely tuned to fit the specific image with no moving/changing parts to worry about.</li> <li>- Should be variable, allowing for different pre-sets and quick changes.</li> <li>- Contrast is important.</li> <li>- Predefined filters for colourblind people.</li> <li>- Be able to use own settings on different devices. It looks as if the QR code shows that the wish is already fulfilled and it is easy to use the personal settings on different devices.</li> </ul>
<b>Tactile multimedia guide</b>	
What the participants LIKE	<ul style="list-style-type: none"> <li>- Participants enjoyed touching the relief and seeing what can be done in terms of the projection.</li> <li>- It's very interesting, but it seems similar to the content on the Feelif tablet.</li> <li>- It enables different individual experiences of the object, based on different senses.</li> <li>- The combination of features it offers, and the possibility to enlarge the contents.</li> <li>- It is absolutely inclusive, designed for all, suitable for young and older people.</li> <li>- The detailed explanation of the artwork.</li> <li>- The combination of seeing and hearing to explore the artwork.</li> <li>- The relief invites spontaneous touch; touch is something immediate</li> <li>- For children! The participants saw potential in using the tactile multimedia guide to make art more accessible and interesting for children by enhancing it with haptic and sound information.</li> </ul>



What the participants DISLIKE	<ul style="list-style-type: none"> <li>- Useful in the way shown in the presented video clip, but for other types of items may not be the best.</li> <li>- Animations aren't needed.</li> <li>- It needs to be simple, otherwise people will lose interest.</li> <li>- The sense of touch also decreases with age.</li> <li>- Concern: is it usable in old age despite the more demanding fine motor skills?</li> <li>- Technically "susceptible" (issues), complicated: participants were worried that the complexity of the tool might lead to problems regarding its maintenance and ease of use.</li> <li>- Regarding speech: unstable</li> <li>- Usability: Settings for individual visitors</li> </ul>
What the participants WISH	<ul style="list-style-type: none"> <li>- To be able to detect details on the relief.</li> <li>- Sustainability and reliability with regards to the technical equipment (possibility for system upgrades).</li> <li>- Connecting the tactile relief to one's own PC.</li> <li>- Access to objects that are not connected via tactile relief.</li> <li>- Transfer of the contents/functions to functioning hardware: due to the worries regarding maintenance, it would be important that content can be transferred to another system, and that elements of the system could be swapped out independently without having to buy an entirely new system.</li> <li>- Technical update: there should be long-term support for such an investment including updates, this may also be a potential revenue stream to include in the business model.</li> <li>- Association with a story related to the artefact that brings memories to older people.</li> <li>- Considering The Box, it can be placed in nursing homes.</li> <li>- Challenge for nursing homes – maybe better for assisted living: participants worried about the complexity of the tool and thought it might be more fitting for AAL settings where users can get support from staff.</li> <li>- Short training should be provided to learn how to use the system.</li> <li>- Support to manage the settings.</li> </ul>
<b>Signing avatar</b>	
What the participants LIKE	<ul style="list-style-type: none"> <li>- It is a very simple way to make contents accessible for the deaf people.</li> <li>- It is also useful for people with hearing impairments.</li> <li>- The possibility to create a "dictionary" of complex, technical words and concepts (related to the museums and the heritage) in sign language.</li> <li>- It is suitable for art promotion.</li> </ul>
What the participants DISLIKE	<ul style="list-style-type: none"> <li>- Why do we make avatars if someone can show it? The avatar does not properly replace people.</li> <li>- The signing avatars are controversial in the deaf community, and many people would prefer a human sign language interpreter</li> <li>- Speech output makes it seem impersonal.</li> </ul>

	<ul style="list-style-type: none"> <li>- It is too unlively, native signer would be better.</li> <li>- Low contrast between the avatar and background.</li> <li>- Questionable cost-benefit ratio for a very small target group.</li> <li>- It is only usable for people who know sign language. There are subtitles for the rest.</li> </ul>
What the participants WISH	<ul style="list-style-type: none"> <li>- To have subtitles and all explanations in Slovene, and other languages.</li> <li>- Videos with real people.</li> <li>- Use for “short-term” translations (e.g., quick messages, important notices) rather than medium-/long term messages.</li> <li>- A different kind of avatar, perhaps something with more colour or even associated with the artefacts.</li> <li>- The possibility to personalise the appearance of the avatar, based on the identity and themes of the museum</li> <li>- Support for dialects.</li> <li>- Being able to connect your hearing aid to a system where they can then hear information about the image.</li> <li>- Black gloves: participants mentioned that due to the low contrast to the background and the white lab coat, it was sometimes difficult to see what the avatar was signing, so having the avatar wear gloves with enough contrast could help with identifying the hand gestures).</li> </ul>
<b>3D printed replicas</b>	
What the participants LIKE	<ul style="list-style-type: none"> <li>- Useful for certain artefacts, when you want to highlight one property (e.g., outline, profile).</li> <li>- It is useful for the completely blind people who sometimes grab objects hard. Because it's solid, they can't break it.</li> <li>- The possibility to replicate some artefacts at low cost.</li> <li>- Touching things helps experiencing something as it is.</li> </ul>
What the participants DISLIKE	<ul style="list-style-type: none"> <li>- The 3D printed object looks "artificial" like a toy.</li> <li>- Plastic is unpleasant. Is not like stone or wood.</li> <li>- The size of the replica affects the quality and perception of the details.</li> <li>- If you are already making a 3D replica, why not make it more real, like original, in true colours.</li> <li>- Hygiene – “I won't touch it, and always bring my own disinfection spray”.</li> <li>- Tactile exploration requires a lot of time.</li> </ul>
What the participants WISH	<ul style="list-style-type: none"> <li>- Combine the tangible object with an audio narration to better understand it.</li> <li>- Using different colours and textures.</li> <li>- Colour of the replicas should be selectable. Black doesn't seem to go well with the mood.</li> <li>- The copy should be as similar as possible to the original artefact and give the same feeling as if you are touching the original one.</li> <li>- To explore the replica and talk about it with another person, to activate an interaction among relatives and friends.</li> </ul>



## 6. Evaluation of the co-creation workshops by the participants

Considering the questionnaire responses, all the participants enjoyed the workshop activities and considered them as engaging, easy and useful. Some concerns were pointed out regarding the duration of the workshops: according to some participants, the workshop can be shortened. Indeed, some participants (application partners) in Slovenia, Italy and Portugal considered the workshop considered the workshop quite exhausting and too extended, considering the different activities included in the plan.

When performing co-design with people who are not familiar with the design mindset and tools, the challenge is to enable them to generate ideas and envision abstract concepts. For example, the creation of the envisioning scenarios was challenging because it requires to imagine a story with all its elements: the characters with specific needs and preferences, the context of use, the flow of interaction with the technologies, and the final outcomes.

Moreover, the discussion of the envisioning scenarios should be facilitated: indeed, the discussion of concepts and abstract stories with people who are not familiar with technologies, is challenging. Thus, the future project activities should include practical examples to better communicate the scenarios (e.g., video scenarios, role playing).

Regarding the other creative activities, the participants easily performed the collage and the exploration of the technologies. Beside the exploration of the technologies was enabled by the prototypes and demos, some participants found difficulties in imagining possible ways in which the technologies can be used.

In the future project activities, we will devote effort to provide the participants with high-fidelity prototypes and new demos to better convey the value of the proposed solutions.

## 7. Conclusions

This document reports the co-creation workshops led by the University of Siena and co-organised in collaboration with the project partners to guide the user-centred design the BeauCoup Service Delivery Models and technologies.

The activity carried out during the workshops allowed the creation of a rich and multicultural portfolio of 26 envisioning scenarios of future museum services enabled by the digital technologies available in the consortium. This is a remarkable result of the project which bring new ideas of services while preserving the richness of the local culture.

The ideas generated by the participants have some similarities and common features: some scenarios integrate different technologies to tailor the experience to the specific needs of each person, considering a heterogeneous audience of potential users; most of the scenarios and ideas rely on the combination of diverse stimuli, ranging from audio narrations to tactile objects, fragrances and tastes. The participants provided interesting and creative ideas on how to engage the older people in the reflection and dialogue about the cultural heritage, with the possibility of contributing to the preservation and valorisation of the local cultures.



The commitment of people involved in the activities of the workshops carried out in four European countries demonstrated a strong belief in a gradual restart of the cultural system after the pandemic, with new ideas to stimulate and support the planning and implementation of cultural initiatives favouring the enhancement and development of the territories through the active involvement of (older) citizens.

The workshop highlighted the importance of promoting a “Culture of proximity” as an investment in people's quality of life and as support for the local areas through the exploitation of the cultural heritage. A “Culture of proximity” values **identity, memory, sociality, education, and entertainment**, all features which are clearly elaborated in our portfolio of scenarios.

The scenarios will be systematised and translated in forms of delivery models of the cultural heritage in the upcoming Task T2.2 “Design of Service Operations & Delivery Models in User Ecosystems”. Starting from the identified user needs and service expectations, an analysis of core and supplementary services, service operations and service delivery systems will be accomplished using user journey and business blueprinting mapping techniques, so to be implemented in WP3 and evaluated in WP4.

Considering what has been defined in the *Description of Work*, the achievements go beyond the expected KPI: indeed, the workshops were organised in four countries (Austria, Italy, Slovenia, Portugal, Switzerland), and they involved a total of 53 participants (24 representatives of the application partners, 29 representatives of the older people target group).

In addition to the design concepts ideated with the participants, the co-creation workshops allowed us to discuss the vision and goals of BeauCoup with the target stakeholders.

The participants valued the attempt of project to make the cultural heritage accessible and engaging for older people with disability. Indeed, this target group is at high risk of marginalisation, loneliness and poor quality of life.

Moreover, despite undoubtable improvements, there are still several barriers that prevent them for accessing environments, contents and services, based on their needs. Some participants highlighted the need for disseminating a culture of inclusion among the cultural professionals: for example, the participants had some concerns regarding museum directors not understanding that some people cannot come to the museum and, instead of finding better solutions and keep working on adapting the museum to make it accessible.

In light of a holistic vision of the wellbeing, the participants pointed out the need of the elderly to feel part of our society, to contribute to the preservation and transmission of the cultural heritage to the future generations, the need to promote the inclusion, the need to provide opportunities for the life-long learning. Therefore, our project is relevant for day-care centres, collective residences, nursing homes, hospitals but also universities for the third age.

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