Storyteller's
Playbook:

Bringing 3D Cultural Heritage to Life

Funded by the European Union

This project has received funding from the Horizon Europe programme under the Grant Agreement 101195149.

3D 4CH Competence Centre

Credits

Aryballos vessel, Archaeological Museum of Piraeus, Greece.
Athena Research and Innovation Centre, CC BY-NC 4.0.

Authors

Gabrielle Aguilar van Gend, Netherlands Institute for Sound & Vision

Philine Kreuzer, Netherlands Institute for Sound & Vision

Elisa Dalla Longa, Institute of Heritage Science of the National Research Council of Italy

Design

Steffie van der Horst, Netherlands Institute for Sound & Vision

Acknowledgements

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The Institute of Heritage Science of the National Research Council of Italy (CNR ISPC) serves as the CNR hub for research, innovation, advanced training, and technology transfer in the field of cultural heritage. It promotes progress in the understanding, conservation, and enhancement of cultural heritage.

Funded by the European Union

3D-4CH has received funding from the Horizon Europe programme under the Grant Agreement 101195149. Views and opinions expressed are those of the author(s) only and do not necessarily reflect those of the European Union or European Commission. Neither the European Union nor the European Commission can be held responsible for them.

Table of **Contents**

Let's get started!

Introduction

3D models of artefacts, historical buildings, archaeological sites, and other cultural objects have become integral to heritage research, preservation, and restoration efforts. While the technologies for creating and preserving these 3D heritage assets are now well established, there is still considerable potential to explore how they can be transformed into engaging narratives and immersive experiences.

Through a series of structured decisions and creative exercises oriented around storytelling, this workbook provides a practical framework for exploring the use of 3D models as components of narrative-driven immersive experiences.

It builds on the co-creation session ***Storytelling in XR: Bringing 3D Models of Cultural Heritage to Life*** (May 2026), hosted by **3D-4CH** and co-developed by the Netherlands Institute for Sound & Vision and the Institute of Heritage Science (CNR ISPC), in partnership with **TEMS** - the Trusted European Media Data Space.

By working through the exercises, participants are encouraged to reimagine heritage assets as storytellers, characters, environments, evidence, or catalysts for interaction, creating new ways for audiences to experience, engage with, and connect to cultural heritage.

3D model Marine B radio receiver, Netherlands Institute for Sound & Vision
Tijdlab, CC-BY-SA

Who is this **workbook for?**

This workbook is intended for **cultural heritage professionals**, **educators**, **researchers**, **designers**, **creative practitioners**, and anyone interested in creating meaningful experiences with 3D heritage assets.

As the activities focus on creative thinking, storytelling, and interpretation rather than technical production, no specialist knowledge of experience with 3D modelling is required.

The workbook is designed to support both those new to working with 3D heritage assets and those already familiar with them who want to strengthen their narrative and interpretative approaches.

Whether you work with museum collections, historic sites, archives, media content, or digital heritage projects, the activities can help you explore how 3D heritage assets can support storytelling, engagement, interpretation, and creative experimentation in immersive environments.

Roman Bronze Statue, The Hunt Museum, Ireland.
CARARE, CC BY.

How to use this workbook

Structured around three adaptable activities, this workbook provides a practical framework for exploring storytelling with 3D heritage assets.

Activity 1: **Circle of Expectations**

A collaborative exercise that establishes a shared storytelling framework through a series of creative decisions.

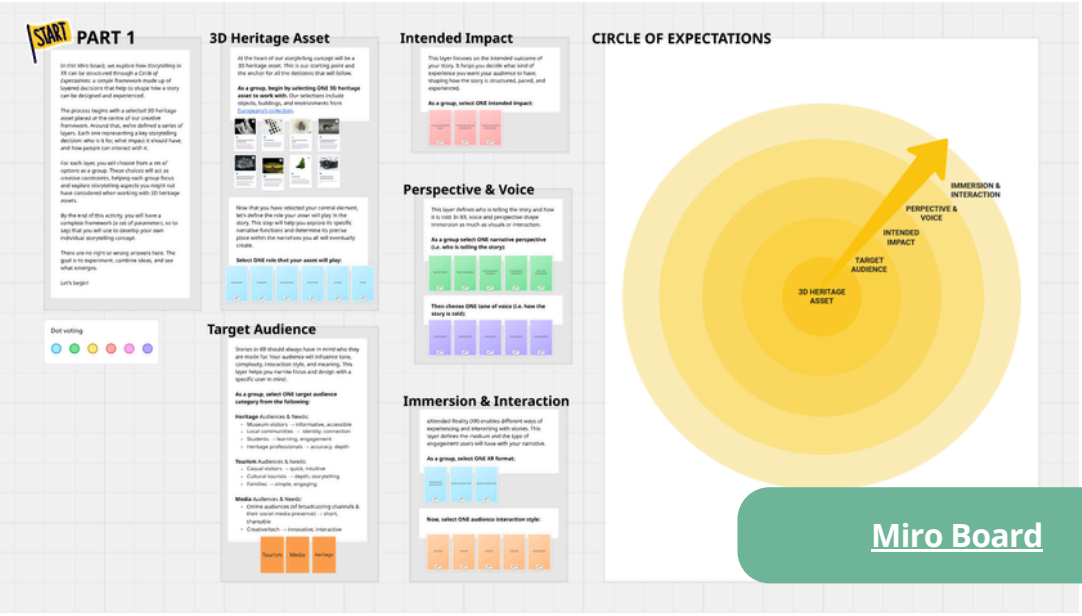
Activity 2: **Storyboarding**

An individual or small-group activity where participants develop a story using the framework established in Activity 1.

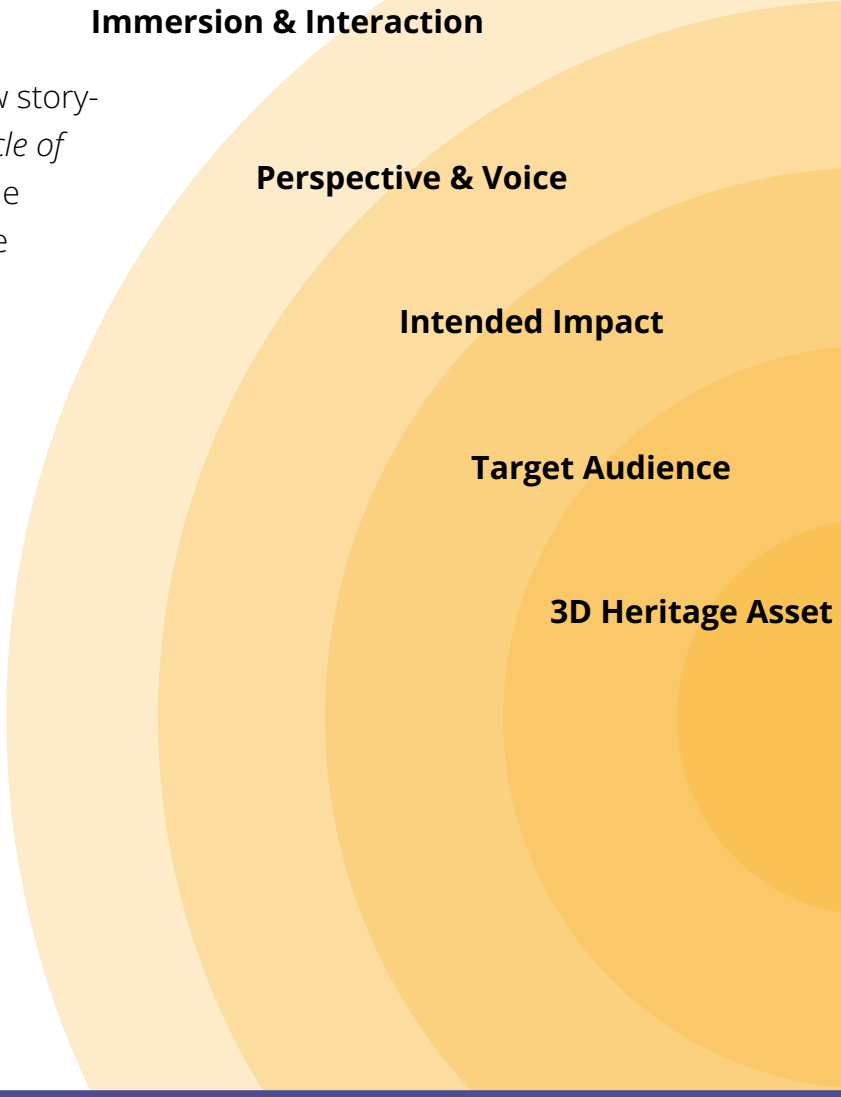
Activity 3: **Sharing & Reflection**

A discussion and reflection activity focused on insights, challenges, surprises, and opportunities for further development.

Originally designed for a digital collaborative workshop environment using Miro, the framework can be adapted for use across different facilitation contexts, including both online and in-person settings, as well as individual reflection-based work.



Activity 1: **Circle of Expectations**



In this activity, participants explore how story-telling can be structured through a *Circle of Expectations*: a simple frame-work made up of layered decisions that help shape how a story can be designed and experienced.

The process begins with a selected 3D heritage asset placed at the centre of the framework. Around this central asset are a series of layers, each representing a key storytelling decision: who the story is for, what impact it should have, and how people can interact with it in an immer-sive environment.

Reading tip!

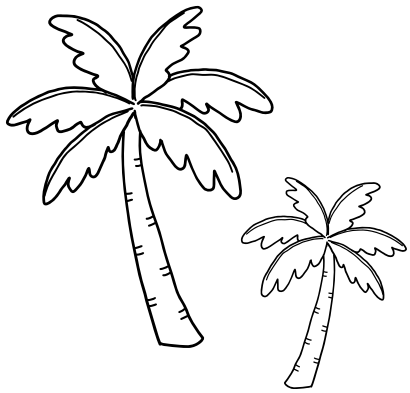
This approach is adapted from improvisational theatre, specifically drawing on Keith Johnstone's concept of the *Circle of Expectations*. His *Circle of Expectations* describes the assumptions an audience brings to a show, which improvisers must navigate to first capture their attention, and then draw them into the narrative. In this activity, we adapt this circle into a dynamic sweet spot: the intersection of what a cultural heritage audience expects from a 3D experience, and what the storytellers themselves aim to achieve through their narrative.

For each layer, participants will select one option as a group. These choices act as creative constraints. The goal is to experiment, combine ideas, and see what emerges.

Participants are also encouraged to document the reasoning behind their choices and add notes, reflections, or ideas alongside each decision, trying to align them with both audience expectations and their final goals. This is particularly crucial when translating scientific content into engaging experiences, helping professionals balance public appeal with scientific accuracy.

These open-ended notes can help capture the discussion, explain the creative direction taken, and provide a foundation for further exploration and storytelling development.

By the end of the Circle of Expectations activity, participants will have a complete storytelling framework that can be used to develop their own individual concepts.



Medieval Gilded Donkey Figurine, The Hunt Museum, Ireland.
CARARE, Public Domain.

Reading tip!

It is a well-established principle in design and cognitive research that constraints drive the creative flow. Rather than causing the typical writer's block of a 'blank page,' specific anchors - like the choices within our circle - reduce cognitive overload and act as creative catalysts. If you would like to dive into this more, we recommend *Designing under constraints: To maximize the creative ingredient* by Moreau and Dahl.

1. 3D Heritage Asset

At the heart of your storytelling concept will be a 3D heritage asset chosen from a collection. This is the starting point and the anchor for all the decisions that follow.

There are several ways to approach this:

> If you are working within a cultural heritage institution or organisation and have access to your own 3D heritage assets, you may choose an asset to work with from that collection.

Note: It is recommended that someone with contextual knowledge of these assets is involved in the selection process. Their expertise can help inform the storytelling, interpretation, and creative decisions developed throughout the activities.

> If you do not have access to your own assets, or would like to explore beyond your own collection, you may curate a selection of open-access 3D heritage assets from Europeana's collection.

Europeana's Collection

In both cases, we recommend including a diverse range of asset types, such as objects, buildings, and environments, as varied options can lead to more interesting storytelling outcomes.

> Alternatively, you may start from our curated selection used in the online co-creation session *Storytelling in XR: Bringing 3D Models of Cultural Heritage to Life* (May 2026).

See Appendix 1

You are here

Example **assets**

Green dress, 1870-1873

Two-piece dress in bright green grosgrain silk, trimmed with scalloped strips of green velvet, finished with the same silk, consisting of bodice and skirt.

Read more.

Okhtyrka City Museum of Local Lore

The Okhtyrka City Museum of Local Lore has a collection of materials on the nature, history, culture, and personalities of the city.

Read more.

Figure of A Squatting Monkey

This statuette of a monkey is created from a single limestone piece. Sitting on a rectangular plinth, the knees are drawn up and the arms reach out.

Read more.

Title:

Short description:

Or add your own asset!

More Assets in Appendix 1

Once a selection has been prepared, participants will choose one 3D heritage asset that will serve as the foundation of the group's storytelling concept.

The next step is to define the role the asset will play in the story. This allows you to explore its narrative function and clarify how it contributes to the story you will eventually create.

Select **ONE role** that your asset will play:

- ☐ Storyteller → guides or narrates the experience
- ☐ Evidence → reveals scientific or historical context or change
- ☐ Environment → acts as the world or setting
- ☐ Character → acts as a persona
- ☐ Trigger → activates interaction or events
- ☐ Other → define your own

Keep in mind that some 3D assets naturally lend themselves to certain roles, but there are no fixed rules. An object can become a storyteller, a building can act as evidence, and an environment can behave like a character. Use this step to experiment and reimagine what your chosen asset could do within a narrative.

An important note: It is completely natural for story ideas to start flowing from the very beginning of this activity. Do not ignore them; these creative sparks are incredibly valuable. Keep them in mind as you build your *Circle of Expectations* - and jot them down if you are worried they might slip away. While the actual storyboarding happens in the second part of this workbook, your first ideas are being born right here. Notice them, explore them, start paying attention to them right now.

2. Target Audience

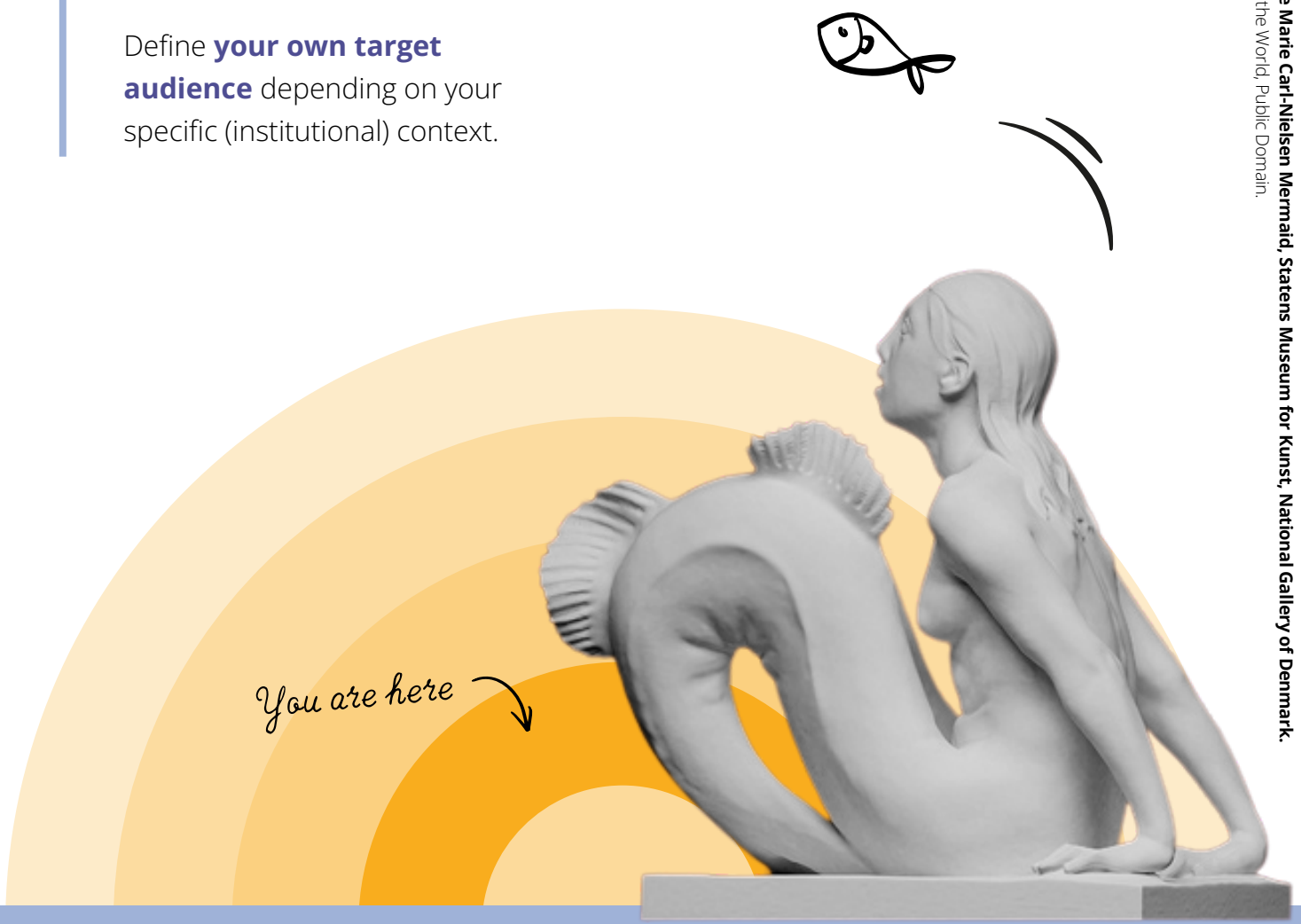
Stories in XR should always consider who they are made for. The target audience influences tone, complexity, interaction style, and meaning. This layer helps you narrow focus and design with a specific user in mind.

For this layer, you can either:

> Select one of the **predefined audience** categories on the next page;
>
> Define **your own target audience** depending on your specific (institutional) context.

Note: While all three predefined audiences and their needs are very complex, we have distilled them to their absolute essence for this activity.

This high level of synthesis strips away the theoretical noise to give you a highly practical, streamlined tool, allowing you to map out your story's direction quickly and effectively.



Anne Marie Carl-Nielsen Mermaid, Statens Museum for Kunst, National Gallery of Denmark.
Scan the World, Public Domain.

Heritage Audiences & Needs

- [ ] Museum visitors → The experience should be **informative and accessible**.
- [ ] Local communities → The emphasis should be on **identity and connection**.
- [ ] Students → The experience should focus on **learning and engagement**.
- [ ] Heritage professionals → The experience should be **accurate and contain rich information**.

Tourism Audiences & Needs

- [ ] Casual visitors → The experience should function in a **quick and intuitive** way.
- [ ] Cultural tourists → The experience should focus on **deep storytelling**.
- [ ] Families → The experience should be **simple and engaging**.

Media Audiences & Needs

- [ ] Online audiences (of broadcasting channels & their social media presence) → The experience should be **short and shareable**.
- [ ] Creative/tech → This audience is looking for **innovative and interactive** experiences.

Your Audiences & Needs

If you have a different target audience in mind, take a moment to map their needs using whatever approach works best for you. Make sure to note any nuances your project requires.

[Color palette], Ajuntament de Girona, PHOTOCONSORTIUM, Public Domain.

3. **Intended Impact**

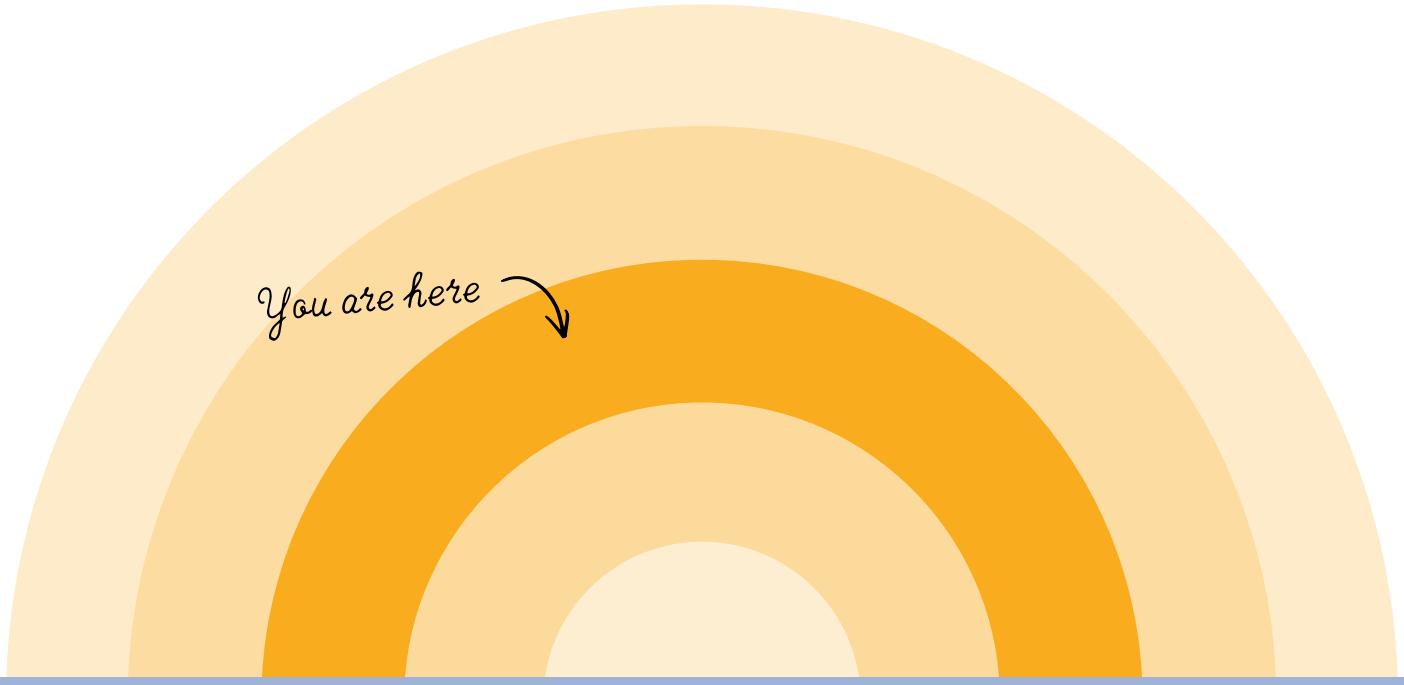
This third layer focuses on the intended impact of your story. It helps you decide what kind of experience you want your audience to have, shaping how the story is structured, paced, and experienced.

As a group or by yourself, **select ONE intended key impact**:

- ☐ I want my user to **learn** → They gain knowledge or understanding of something new.
- ☐ I want my user to **feel/reflect** → They experience an emotional or personal connection.
- ☐ I want my user to **take action** → They change their behavior or start thinking differently about a given topic.

A storytelling experience can often evoke multiple effects at once – a story designed to inform may also create emotional responses, and an experience aimed at reflection may also inspire action. Use this layer to identify your primary intention.

Càmera fotogràfica CANON model AT-1, INSPAI, Centre de la Imatge de la Diputació de Girona. PHOTOCONSORTIUM, Public Domain.

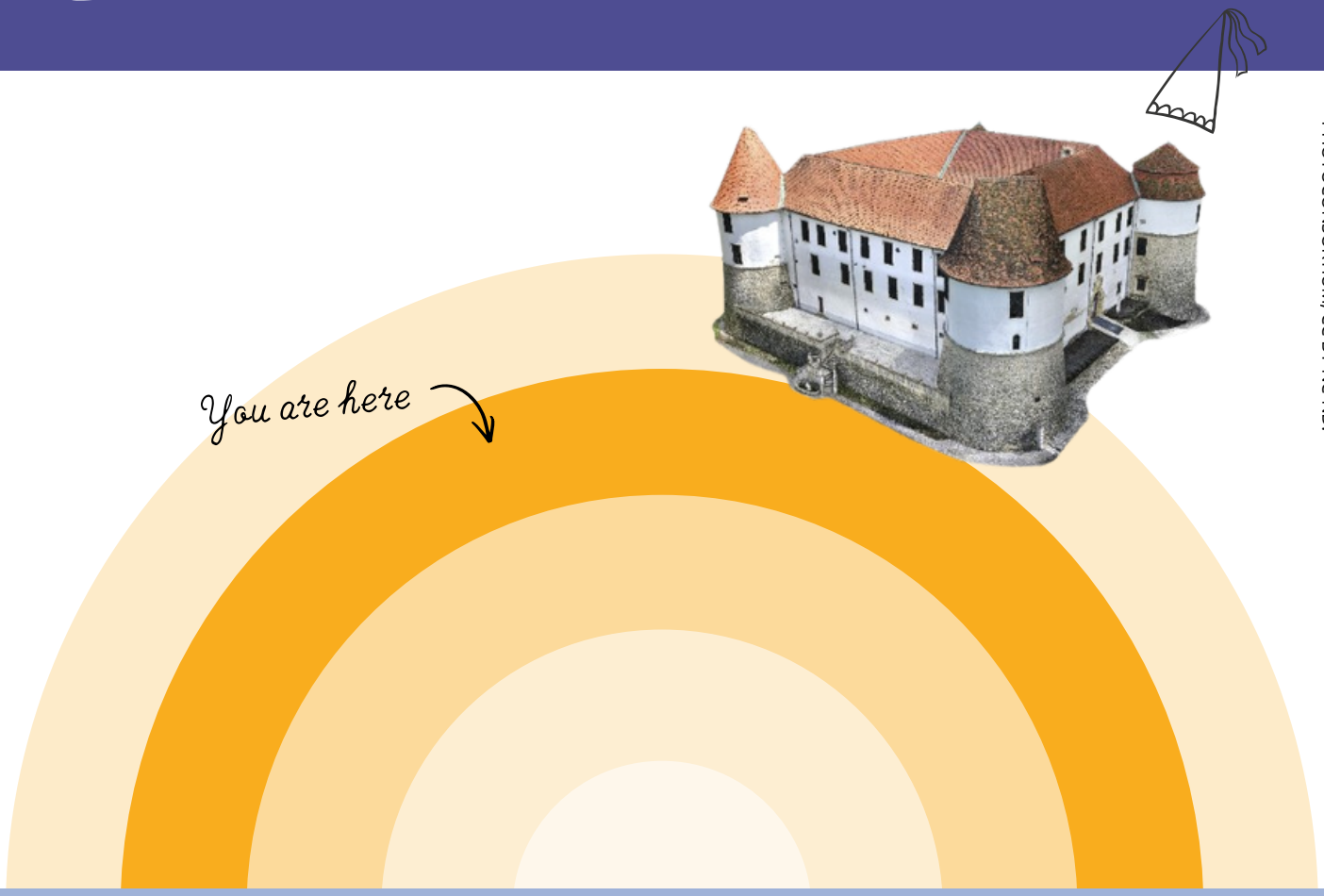


4. Perspective & Voice

This fourth layer defines who is telling the story and how it is told. In XR, voice and perspective shape immersion as much as visuals or interaction do. They can also infuse the storytelling with emotional and evocative elements.

Select ONE narrative perspective (i.e. who is telling the story):

- ☐ The 3D asset → the object/environment speaks or guides
- ☐ Your institution (consider a context that corresponds to the audience you chose in the third layer) → authoritative, curatorial voice
- ☐ An omniscient narrator → all-knowing, outside the story
- ☐ A historical character → first-person, situated in the past
- ☐ The user themselves → story unfolds through user actions

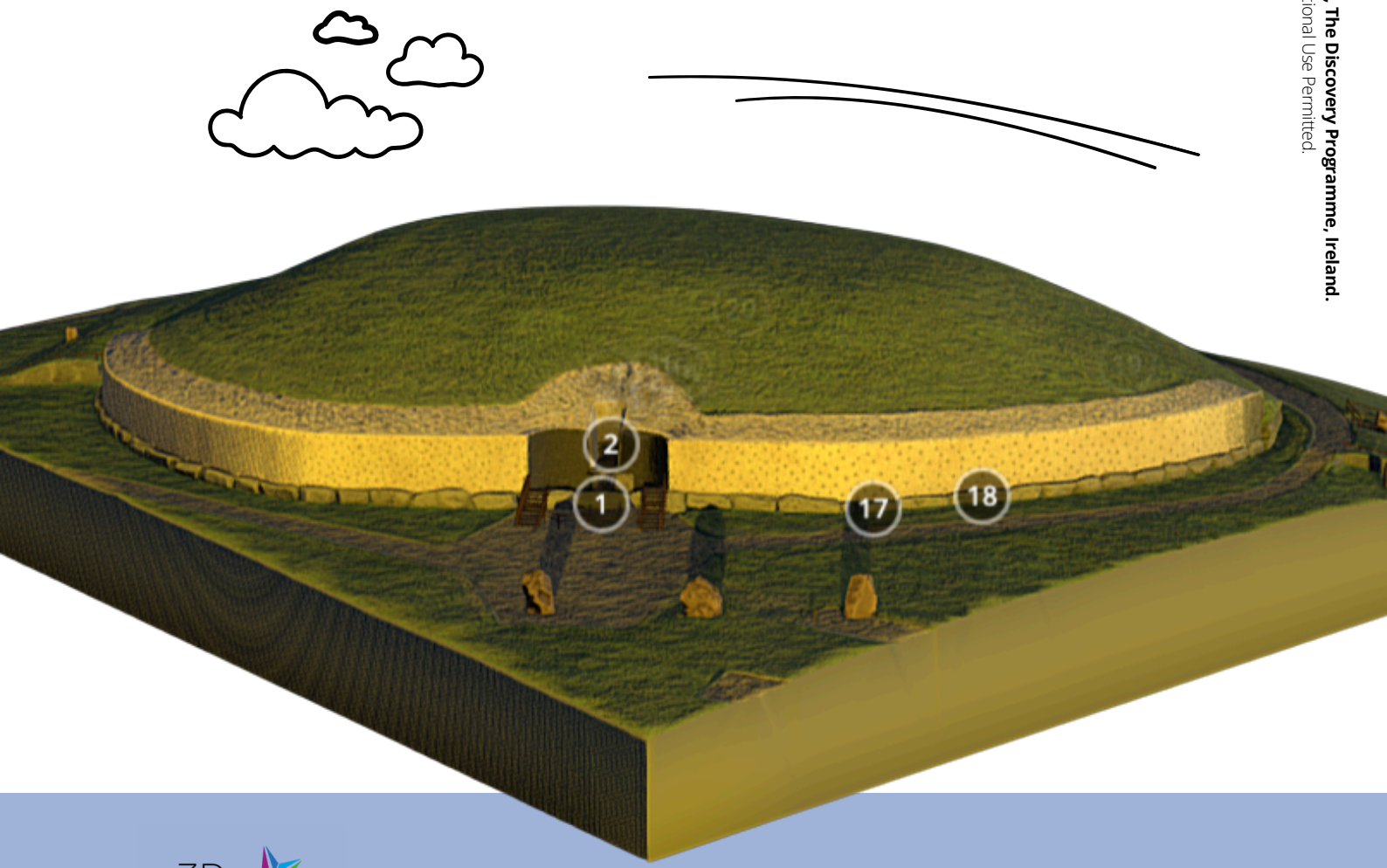


3D Model of Castle, ARCTUR, Slovenia. PHOTOCONSORTIUM, CC BY-NC-ND.

Then choose ONE tone of voice (i.e. how the story is told):

- ☐ Educational → clear, informative, explanatory
- ☐ Entertaining → playful, engaging, story-driven
- ☐ Reflective → slow, thoughtful, introspective
- ☐ Empathetic → emotional, human-centered perspective
- ☐ Atmospheric → sensory, mood-driven, minimal explanation

Each perspective and tone offers a different way of shaping and addressing meaning, but these are not fixed combinations. A voice can be playful and atmospheric, or authoritative and reflective. Use this layer to explore how perspective influences how your story is told and experienced.



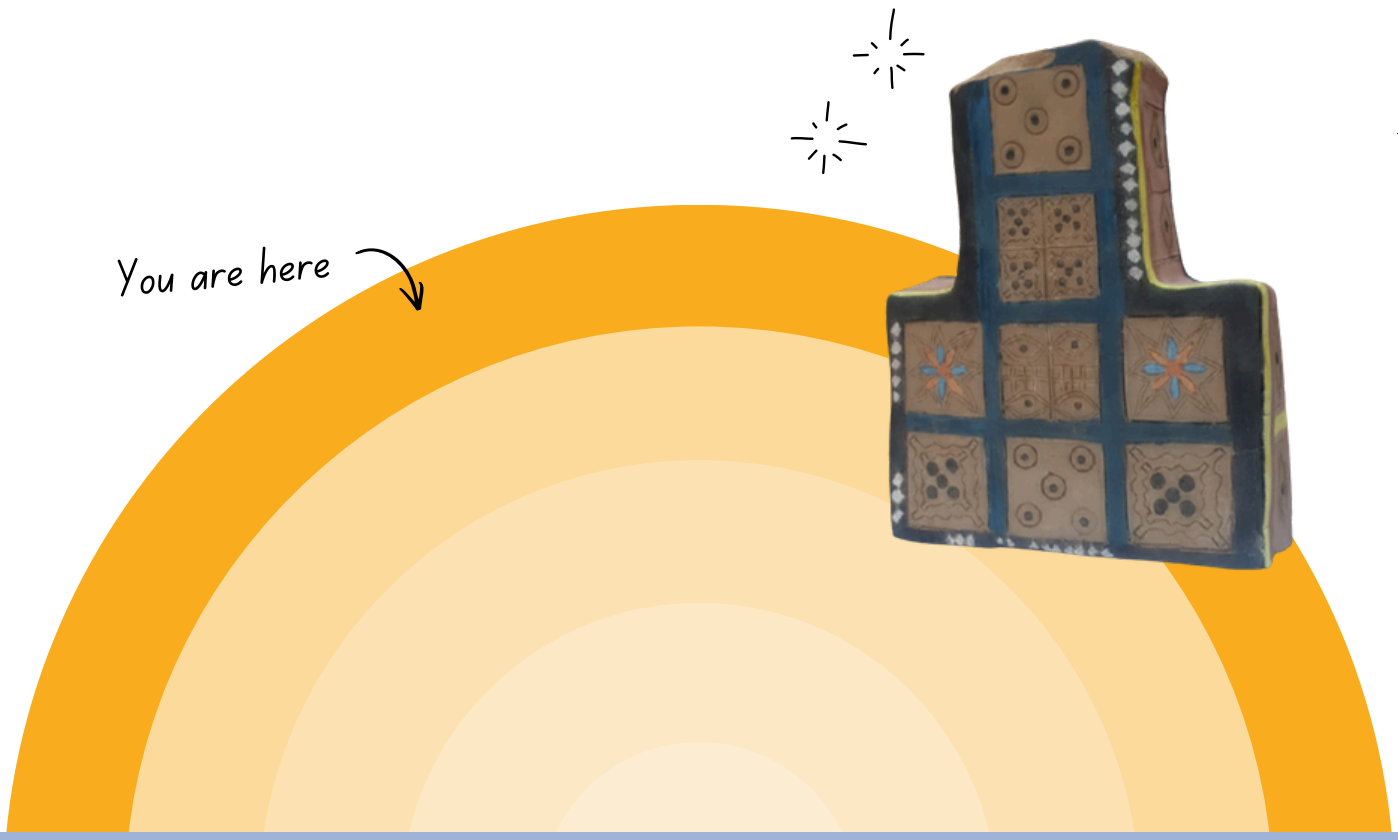
Newgrange Passage Tomb, The Discovery Programme, Ireland.

5. Immersion & Interaction

XR enables different ways of experiencing and interacting with stories. This fifth layer defines the type of engagement users will have with your narrative and the medium which will help you deliver that experience.

Select ONE audience interaction style:

- ☐ The audience **observes** → guided, linear experience
- ☐ The audience **explores** → open navigation and discovery
- ☐ The audience **decides** → choices with consequences
- ☐ The audience **performs** → role-play or embodied interaction
- ☐ The audience **collaborates** → shared or multi-user experience



Fragment of Ur game board, Tech4Heritage, Iraq. CARARE, CC BY.

Based on the type of engagement you want your user to have, take a look at some of the possibilities of working with immersive technolgies, then **select ONE XR Format**:

Augmented Reality (AR)	• Enhances the environment with a layer of digital content on a screen. • Accessible via smartphones/tablets — no special equipment needed • Enhances real-world environments with contextual overlays • Cost-effective and scalable for wide distribution • Ideal for on-site storytelling and education • Non-intrusive and easy to adopt
Virtual Reality (VR)	• Replaces the environment with digital content through a headset. • Fully immersive, engaging experience • Frees users from real-world physical constraints • Enables rich, narrative-driven storytelling • Safe access to delicate, distant, or reconstructed environments
Mixed Reality (MR)	• Allows for interaction between virtual and real environments, using a translucent headset. • Combines physical and digital interaction seamlessly • Encourages deep, intuitive engagement • Enables hands-on exploration of virtual objects in real space • Supports collaborative and educational experiences

Each combination of XR technology and interaction style offers different possibilities for presence, engagement, and narrative delivery. Think about the combination that best fits your intended experience and impact.

Virtual Reality

Your Circle of Expectations

3D Heritage Asset

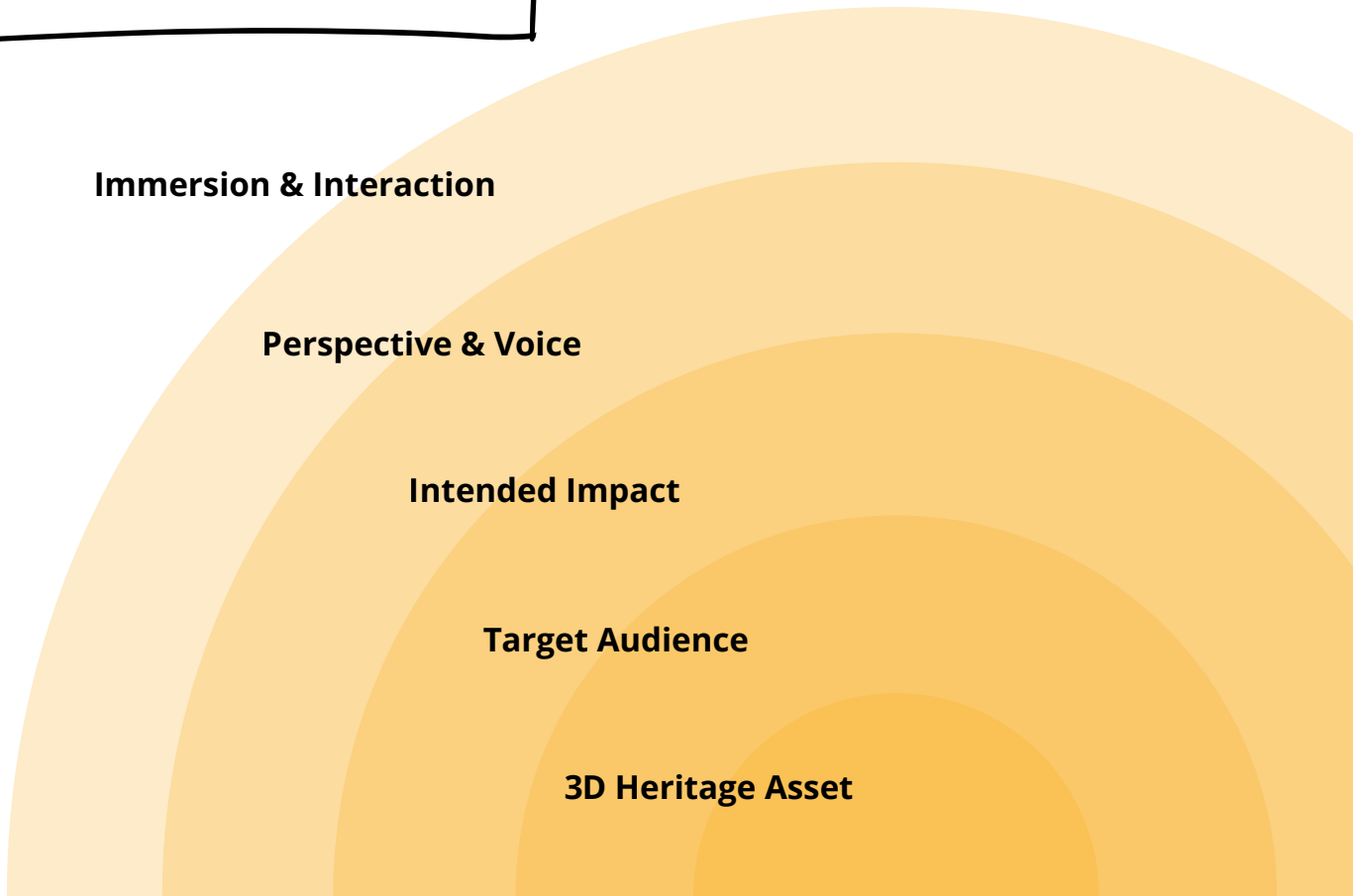
Target Audience

Intended Impact

Perspective & Voice

Immersion & Interaction

Space for your design decisions!



Activity 2: **Storyboarding**

Building on the framework established in Activity 1: *Circle of Expectations*, you will now develop a storytelling scenario. If you worked in a group, this is where you will translate the group-defined parameters into your own individual storyboards. If you worked by yourself, you will continue with the parameters you defined.

In both cases you will be following a simple narrative structure: **beginning**, **middle**, and **end**.

For each part, you can either start by collaging ideas using our curated visual library in the Miro board or by writing your concept directly. If you would like to work with analogue collaging, feel free to do so.

Miro Board

Storytelling tips!

- Stories don't always need to be developed in a linear way. You may choose to start from any part of your story. Think of this as a flexible design process rather than a fixed sequence.
- Let your ideas flow without censoring them. This approach is known as the "*Yes, and...*" rule, articulated by improvisation teacher Keith Johnstone (1979) to overcome the fear of making mistakes: "*Yes*" – first, you accept your idea without judgment; "*And...*" – then, you build the next layer of the story on top of it. For example: *Yes, this object reveals a hidden past... and this discovery changes how the space is experienced*.
- The visuals in our curated library can act as a metaphor to help you express an idea. If you are, for example, focused on a social XR experience, you can choose something with several people, if you are interested in embodied experiences you might choose an eye or a hand, if sound is an important element then you might choose a music sheet, etc.

Beginning

In the beginning part of your storyboard, you will introduce the world of your experience, establishing the main characters, tone, and context of your scenario by addressing the who, where, when, what, and why.

Your audience should be given an initial glimpse of your chosen 3D heritage asset. You should also allow time for them to orient themselves within the space, especially if you are working in VR.

If your experience is interactive, include a brief introduction to how it works. This does not need to be overly technical, simply allow users to try a few basic movements, actions, or triggers.

Avoid overwhelming your audience with too much information at once. Focus on clarity and immersion rather than detail. Use the prompts below to guide your thinking:

> **Who** is involved?
> **Where** does the experience take place?
> **When** is it set?
> **What** is happening?
> **Why** does this story exist?

Polovtsian statues, Izyum, Kharkiv region, Ukraine.
Pixelated Realities, CC BY-NC 4.0.

Middle

You have now captured the audience's attention. With their focus secured, you can begin guiding them exactly where you want them to go: **toward your intended impact**.

The middle of your storyboard will act as a moment where something happens that shifts the narrative, challenges expectations, or introduces new meaning to your 3D heritage asset.

Think of it as the turning point in your story: a moment where the experience moves from introduction into transformation. This shift should be connected to your intended impact (learn, feel/reflect, take action). It is where your story begins to clearly express its purpose.

This is where your story becomes distinct. Many stories can introduce a context, but in this section you define what specifically happens in yours and why it matters.

Velika planina – Chapel of St Mary of the Snows, Slovenia. ARCTUR, CC BY-NC-ND.

End

In the end part of your storyboard, your story will come to a close.

The end brings resolution to the narrative shift introduced in the middle, or it may intentionally leave questions open for reflection. It is where you decide how the experience settles and what remains with the audience.

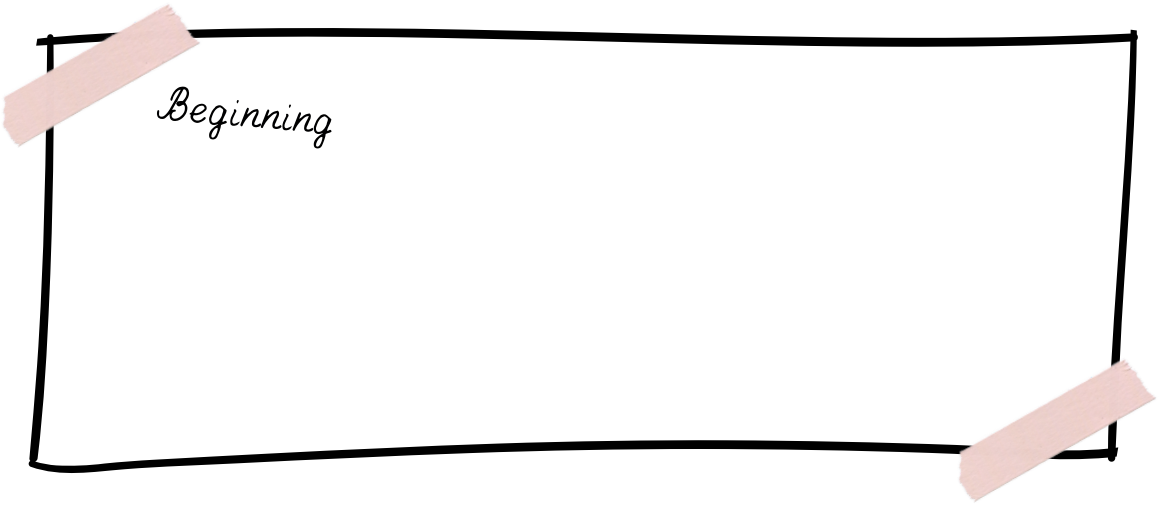
You can choose to:

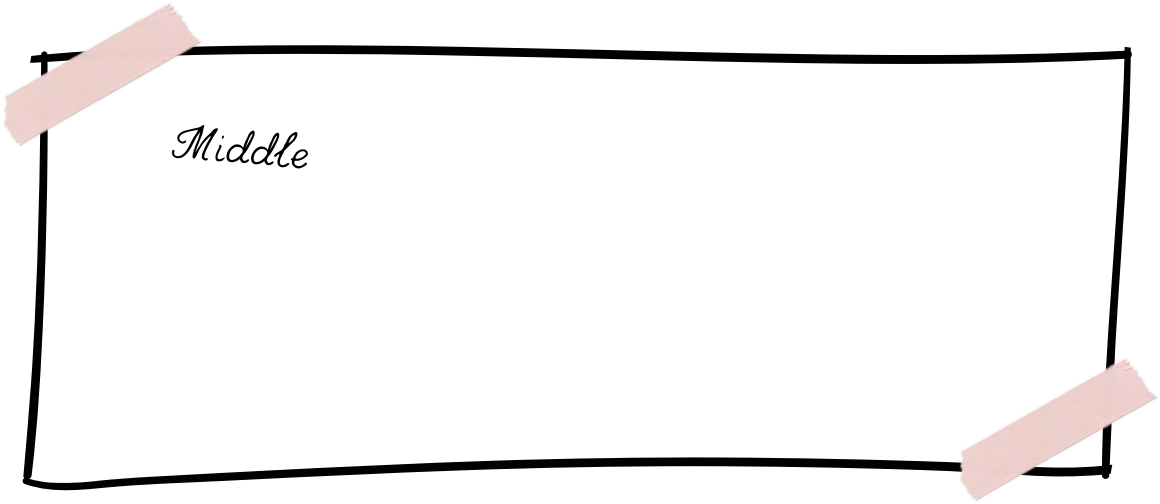
> **Conclude** the story by revealing outcomes, answers, or final states
> **Reflect** on what has changed as a result of the experience
> **Return** to the original context with a new understanding
> **Leave** the ending open, allowing the audience to interpret what happens next

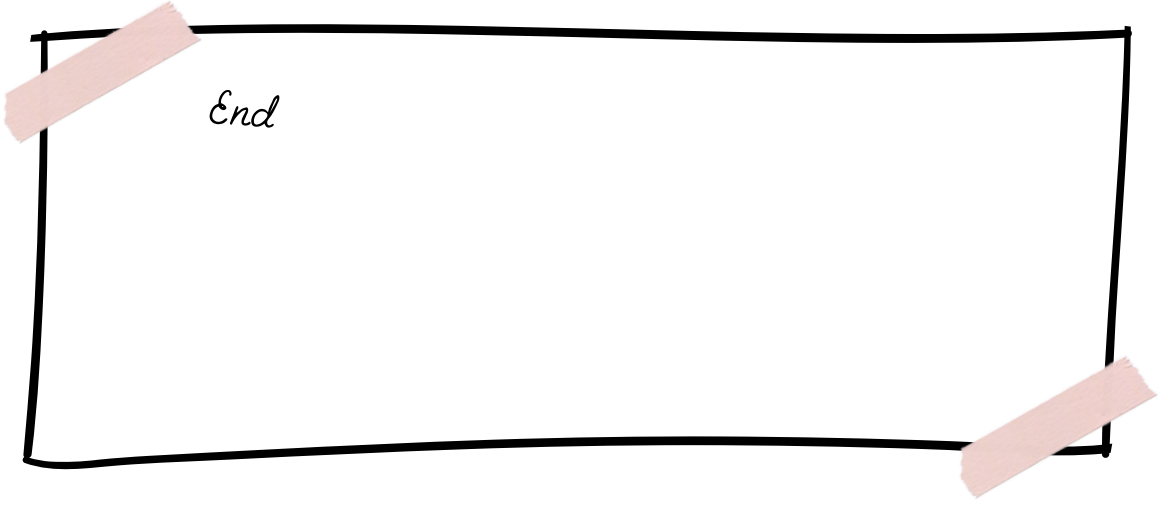
Think about how your ending connects back to your intended impact. This is the final moment to reinforce, expand, or challenge that intention.

Lioness of the Odesa City Garden, Odesa, Ukraine
Pixelated Realities, CC BY-NC 4.0

Now it's time to tell your story!







Activity 3: Sharing & Reflection

Figure Of A Squatting Monkey, The Hunt Museum, Ireland. CARARE, Public Domain.

This final activity focuses on sharing and reflecting on the storytelling concepts developed in the Storyboarding Activity. Here, there is the opportunity to revisit the creative decisions made throughout the process, identify emerging ideas, and consider how concepts might be further developed into a fully realized storytelling project later on.

When working in a group, participants are invited to share their storyboards with others and discuss the choices behind their concepts. This can include reflecting on the challenges encountered, unexpected discoveries, and decisions they might like to revisit or change. Through discussion, participants can explore similarities and differences between concepts and identify recurring ideas, themes, or approaches.

When working individually, you can use this activity as an opportunity for self-reflection. Revisit your storyboard and consider the questions below:

- What storytelling choices were most important in shaping the experience?
- Which decisions were challenging, and why?
- Did any ideas or interpretations change during the process?
- What aspects of the concept feel most interesting or worth exploring further?
- Are there recurring themes, opportunities, or directions that could support further development?
- Does the story effectively deliver your intended impact?
- Does the story fully explore the potential of the 3D asset?

The aim of this activity is not to evaluate the final concept(s), but to recognise patterns, connections, and possibilities that emerge through reflection. These insights can help refine ideas, identify opportunities for collaboration, or provide a foundation for future prototyping and immersive experience development.

Next Steps

Throughout this workbook, you have explored how 3D heritage assets can become starting points for storytelling, interpretation, and immersive experiences. Through a process of creative decision-making, experimentation, and reflection, you have developed a storytelling concept and explored new ways of imagining how audiences can engage with cultural heritage.

This process does not provide a single solution for how 3D heritage assets should be used, but rather offers a framework for exploring possibilities, asking new questions, and identifying meaningful directions for future development. Whether working individually or collaboratively, the ideas generated through these activities can serve as a foundation for further exploration, discussion, and experimentation.

Desk clock, The Foundation of the Museum of the Macedonian Struggle and Modern History of Macedonia
Greek Aggregator SearchCulture.gr, CC-BY-NC-ND.

What comes next is up to you. You may choose to refine your concept, share it with colleagues, explore potential collaborations, or take the next step towards prototyping an immersive experience.

If you are interested in continuing your exploration of storytelling with heritage assets, a more comprehensive course on this topic will be made available through the **3D-4CH Online Competence Centre** in 2027. This course will provide an opportunity to deepen your understanding of storytelling approaches, further develop your ideas, and work towards certification of your learning.

The 3D-4CH Online Competence Centre will also offer additional courses and resources covering different aspects of working with 3D cultural heritage, from technical workflows and digitisation to visualisation, XR, access and reuse.

We hope this workbook provides you with the inspiration and tools to continue experimenting, collaborating, and shaping new ways of experiencing and sharing cultural heritage.

Appendix 1

Curated **Assets**

Anne Marie Carl-Nielsen, Mermaid, 1920

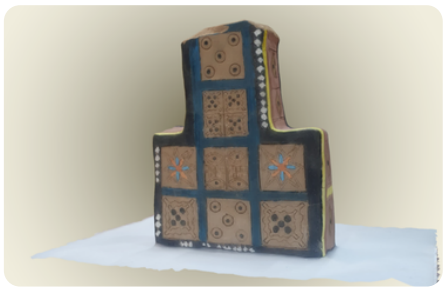
With mouth and eyes wide open, the mermaid meets the world with a scream. She speaks directly to us about basic, vital instincts.

Read more.

[Color palette] 1850

Color palette for coloring daguerreotypes. It contains 22 holes for different colors. For the process, the photographer first had to prepare the plate.

Read more.



Fragment of Ur game board, 2600-2400 BC

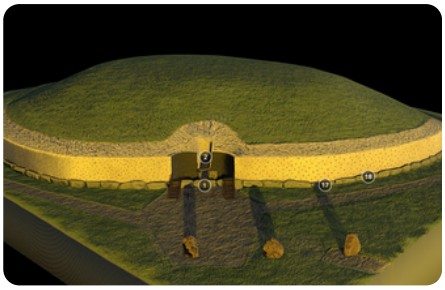
Replica of a fragment of an Ur game board. The game is named after the location of tombs where game pieces were discovered.

Read more.

Medieval Gilded Donkey Figurine, MG 139/025

The domestic donkey has it's origins in Egypt c. 4000 BC. They quickly became vital in trade routes and from Africa their use spread from Syria to Siberia.

Read more.



Newgrange Passage Tomb

Newgrange Passage tomb is a Neolithic passage grave at Brú na Bóinne, Co. Meath, Ireland. It is a UNESCO World Heritage Site.

Read more.

Càmera fotogràfica CANON model AT-1

Càmera reflex SLR amb objectiu de 50 mm. This item is provided and maintained by INSPAI, Centre de la Imatge de la Diputació de Girona.

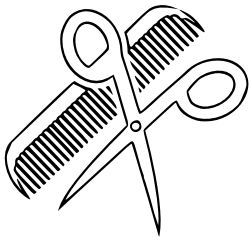
Read more.

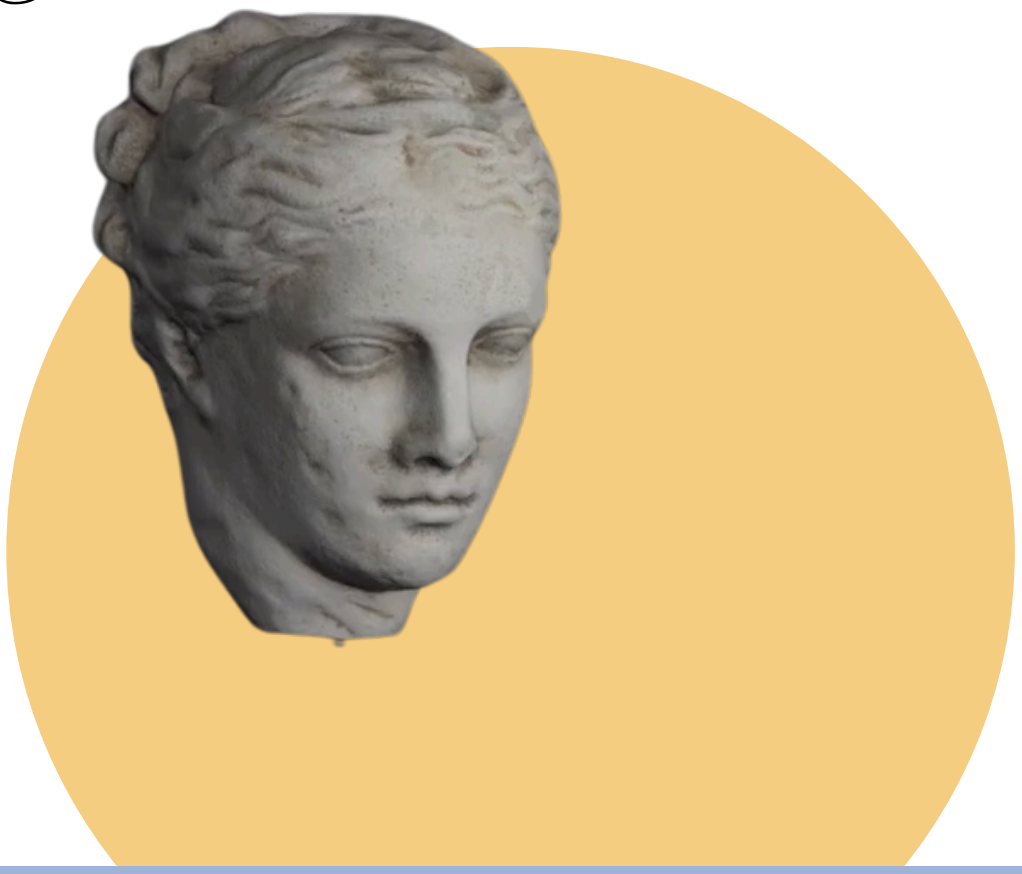
Example **Scenarios**

The following scenarios were first imagined during the online co-creation session *Storytelling in XR: Bringing 3D Models of Cultural Heritage to Life*, organized by the Netherlands Institute for Sound and Vision and the Institute of Heritage Science of the National Research Council of Italy hosted by 3D-4CH in partnership with TEMS on 6 May 2026.

Later refined for publication, these imaginary narratives use real-life examples of 3D models as a starting point to illustrate opportunities for XR storytelling.

They are not intended for development into applications, but instead serve as sources of inspiration and as examples of how to kick-start a meaningful creative process for storytelling in the cultural heritage sector using 3D assets.





Head of Hygieia's statue (Goddess of Health), Laodikeia excavation, Turkey.
Athena Research and Innovation Centre, CC BY-NC 4.0.

(Re)constructing Memory

The Virtual Revival of Okhtyrka City Museum of Local Lore

Okhtyrka City Museum of Local Lore

The Okhtyrka City Museum of Local Lore has a collection of materials on the nature, history, culture, and personalities of the city.

Read more.

3D Asset selected

- **Title**: Okhtyrka City Museum of Local Lore
- **Institution**: Pixelated Realities

Authors of the scenario

- Yara Alkhatib, The American Center of Research
- Gabrielle Aguilar van Gend, Netherlands Institute for Sound & Vision

Beginning

The visitor is first introduced to the virtual reality (VR) experience and given a brief onboarding to movement and interaction before entering a darkened virtual space.

At first, only fragments are visible: bricks, dust, and architectural details suspended in darkness. Slowly, the pieces begin to gather and assemble, forming the museum building.

As the structure materializes, the building itself begins to speak. Its voice is calm, heavy, and reflective. It introduces itself not only as a museum, but as something shaped by the region, tied to the city of Okhtyrka, and connected to generations of memory, preservation, and loss.

(Re)constructing Memory

Middle

As visitors move through the museum's exhibition spaces, the building guides them through fragments of its history and collection.

Interacting with objects, architectural details, and traces within the environment activates archival footage, ambient sounds, and memories connected to the museum and its community.

Throughout the experience, visitors encounter layered versions of the space across different moments in time. Rooms shift between preservation and destruction, while memory-like figures offer stories, reflections, and hints that guide exploration.

Through small acts of discovery, such as locating missing artifacts or uncovering hidden details, visitors gradually piece together their own understanding of the museum's significance.

As these memories accumulate, the museum reveals itself not only as a container of heritage, but as a witness to conflict, cultural identity, and survival.

End

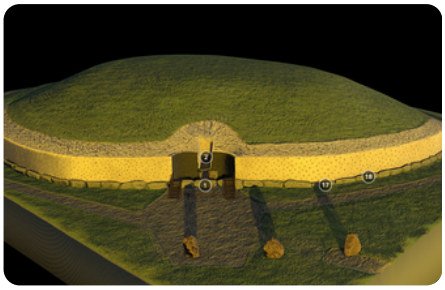
As the experience comes to an end, the museum falls quiet. The visitor is left within the space as traces of voices, memories, and archival fragments slowly fade around them.

Having moved through moments of preservation, loss, and reconstruction, the visitor is invited to reflect on what cultural heritage means in times of conflict and what it means to preserve the memory of a place that may no longer physically exist.

Before leaving the experience, visitors are given the opportunity to share a reflection, either within the physical exhibition space or through a digital message left for future participants. In doing so, their own response becomes part of the museum's continuing memory.

Newgrange

Through the Passage of Light and Time



Newgrange Passage Tomb

Newgrange Passage tomb is a Neolithic passage grave at Brú na Bóinne, Co. Meath, Ireland. It is a UNESCO World Heritage Site.

Read more.

3D Asset selected

- **Title**: Newgrange Passage Tomb
- **Institution**: The Discovery Programme

Authors of the scenario

- Paola Di Cuia, 3D Research s.r.l.
- Philine Kreuzer, Netherlands Institute for Sound & Vision

Beginning

The user enters the Mixed Reality (MR) experience as the Newgrange Passage Tomb emerges within their physical environment at large scale.

They are able to observe, rotate, and gently explore the monument as it settles into space, revealing its passage, chamber structure, and engraved stone surfaces.

A wild horse, a spirit of the place, appears as the guiding presence. It moves through the space and introduces the tomb as a living landscape shaped by memory, myth, and seasonal time, aligned with the approaching winter solstice sunrise.

Newgrange

Middle

As the user enters the passage, the tomb becomes an immersive environment shaped by the movement of light. The horse guides exploration through the structure, drawing attention to architectural details, carved symbols, and thresholds that respond to the user's presence.

As the winter solstice alignment develops, light begins to structure the experience, revealing the depth of the passage and gradually illuminating inner chambers. Along the way, fragments of memory are embedded in the environment itself, suggesting traces of ritual, burial, and human presence tied to the site's long history.

Through movement and observation, the user follows the path of light deeper into the tomb, where space, memory, and time begin to converge.

End

At the final chamber, the winter solstice light fully enters the passage and illuminates the inner space, revealing the culmination of the journey. The horse's presence fades as the alignment is completed, leaving the tomb momentarily filled with stillness and light.

The structure gradually dissolves back into the user's physical environment.

The experience closes in a state of quiet presence, where the monument persists not as an object of observation, but as a felt memory of place and time.

Kerbstone 67, Newgrange Passage Tomb, The Discovery Programme, Ireland.

Making meaning of a donkey figurine

Preserving heritage across time

Medieval Gilded Donkey Figurine, MG 139/025

The domestic donkey has it's origins in Egypt c. 4000 BC. They quickly became vital in trade routes and from Africa their use spread from Syria to Siberia.

Read more.

3D Asset selected

- **Title**: Medieval Gilded Donkey Figurine
- **Institution**: The Hunt Museum

Authors of the scenario

- Mutiara Cininta, Atma Jaya University Yogyakarta
- Elisa Dalla Longa, CNR ISPC

Beginning

The user enters the museum wearing mixed reality (MR) glasses. The donkey figurine appears as a floating 3D asset next to its physical display. A warm golden glow radiates from the figurine. The figurine starts to speak: "I was born in fire and dressed in gold, shaped by hands that believe objects could carry meaning beyond their form."

The surrounding environment gradually transforms into a medieval artisan workshop, allowing users to witness the creation process of the figurine.

The beginning introduces the artefact and orients the user within the MR environment. It establishes the donkey figurine as a meaningful object rather than a static display.

Making meaning of a donkey figurine

Middle

The figurine poses the question: "Was I merely a decoration? Or was I made to carry something greater than gold?"

The environment shifts dynamically through several possible historical contexts, e.g. trade & travel (the donkey as a symbol of economic force); ownership & social meaning (the donkey as a precious object associated with high rank); ritual context (the donkey as a ritual object in meaningful ceremonies and other aspects of spiritual life).

The narrative purpose of the middle section is to reveal the figurine's broader historical significance and to suggest to users that an object is never merely an object.

End

As the final historical scene fades, the once-vibrant medieval world begins to fracture around the user. The sounds of marketplace, footsteps, and distinct voices disappear. The possible transitions are 1) time accelerates dramatically around the buried artefact (seasons flash by); 2) structures rise and decay overhead; 3) landscape transforms; 4) generations pass unseen.

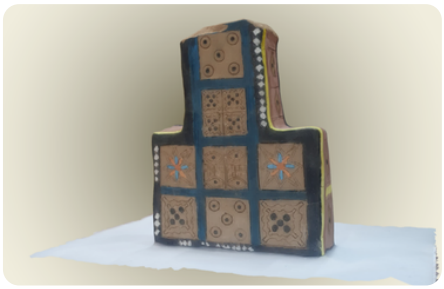
A phrase appears in the holographic MR environment: What stories remain hidden in the objects we preserve?

After that, all the other objects in the room start glowing, or are highlighted to stimulate the sense of discovery.

Narrative purpose of the end section: to transform the conclusion from a "simple" rediscovery into a reflective meditation on memory, loss, preservation, and the relevance of heritage.

Fragments of Ur

Reimagining Ancient Play in Augmented Reality



Fragment of Ur game board, 2600-2400 BC

Replica of a fragment of an Ur game board. The game is named after the location of tombs where game pieces were discovered.

Read more.

3D Asset selected

- **Title**: Fragment of Ur game board
- **Institution**: TheFactStories & Tech4Heritage

Authors of the scenario

- Axelle Vanmaele, meemoo
- Yamini Patankar, ETH Zürich
- Winke Wiegersma, Netherlands Institute for Sound & Vision

Beginning

The user begins the Augmented Reality (AR) experience within their own physical environment using a mobile device.

Gradually, fragments of the Royal Game of Ur appear around them: broken tiles, floating symbols, and missing pieces inviting interaction.

As the object is explored through simple actions such as rotating, zooming, and selecting fragments, a digital Lamassu (an ancient Mesopotamian protective deity) introduces the historical world of ancient Mesopotamia and explains the gameplay.

While the board expands into the surrounding space, the user realizes they are no longer simply observing the game, but have become part of it. Stepping onto a tile activates the journey.

Fragments of Ur

Middle

As the user progresses through the game world, interacting with tiles unlocks fragments of the board and reveals stories connected to the ancient city of Ur.

Historical overlays, sounds, and environmental details gradually transform the user's surroundings into a reconstructed Mesopotamian landscape.

Guided by the Lamassu, the user completes small challenges, discovers hidden symbols, and uncovers the difference between the original fragment and its reconstructed form.

Through play and exploration, the object becomes more than a game piece: it becomes an entry point into the history, mythology, and cultural world from which it emerged.

End

As the experience comes to an end, the reconstructed world of Ur slowly dissolves back into the user's physical surroundings.

Familiar sounds, interfaces, and visual references to contemporary games begin to appear, drawing a connection between the ancient Royal Game of Ur and today's digital gaming culture.

The experience closes by revealing how many elements of modern play, competition, and interactive storytelling can be traced back thousands of years, positioning the fragment not simply as an archaeological object, but as part of a long and evolving history of games and media.

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