HERIFORGE
Cultural Heritage
and Immersive Technologies Forge

HERIFORGE

1ST OPEN CALL

TERMS & CONDITIONS

Submission of applications starts on the 27th of August, 2025 at 09:00 (Brussels time)

Submission deadline: 27th of October, 2025 at 17:00 (Brussels time)

Version 1: 09/07/2025

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Table of Contents

Table of Contents **2**
Open Call Terms and Conditions **3**
1. Open call basic conditions 4
Ground rules and formal requirements 6
2. Submission and evaluation process 7
2.1 Initial Check 7
2.2 IN/OUT Screening 7
2.3 External Evaluation 7
2.4 Jury Day - an online pitching session 8
2.5 Consensus Meeting 8
2.6 Formal check & Agreement signature 9
3. After Sub-Grant Agreement signature 9
3.1 Payment conditions 9
3.2 Progress evaluation 9
4. Contact us 10
5. Complaints 10
6. Last but not least - final provisions 11
Annex I **12**
1. Technical description 12
2. Challenges 13
Cyprus Hub CHALLENGE: Collaborative XR Experiences for Innovation in Cultural Heritage 13
Poland Hub CHALLENGE: Unlocking Interactive Stories: XR storytelling and gamification tools for cultural heritage 17
Türkiye Hub CHALLENGE 1 Reimagining Historical Rituals: Volumetric Intangible Heritage for XR 20
Türkiye Hub CHALLENGE 2: Crafted Realities: Modular Immersive Heritage for Multi-Surface XR Spaces 23
3. Polish Hub Resources Offer 26

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Open Call Terms and Conditions

Welcome to the HERIFORGE 1st Open Call Terms and Conditions (also “Terms” or “Guide”). This document outlines the rules for participation in the HERIFORGE 1st Open Call, including eligibility criteria, maximum grant amount, timeline, submission rules, and the evaluation process.

Please take a moment to read this document carefully to understand the requirements and process. For any questions, please contact us at heriforge.help@fundingbox.com

Good luck!
HERIFORGE Team

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1. Open call basic conditions

Section	Description
Call opening date:	27 August 2025 at 9:00 (Brussels time)
Call deadline:	27 October 2025 at 17:00 (Brussels time)
Project scope - type of activities that can be funded	HERIFORGE 1st Open Call is looking for innovative projects developing **technical solutions in the use of immersive technologies for cultural heritage**, addressing specific Challenges defined by the HERIFORGE Hubs. For a more detailed description and example of the ideal project, please **check Annex I**.
Who can apply?	Individual legal entities applying as • *SMEs,*[1] • *NGOs, foundations, associations - or* • *natural persons*[2], These individual legal entities should be legally registered on the day of application submission **in Cyprus, Poland or Türkiye** and specialising in the area of XR for cultural heritage. Applicants from other EU Member States and Horizon Europe Associated countries are eligible to apply if they demonstrate, in the application form, a **local footprint**[3] (i.e. local staff and/or business record) in Cyprus, Poland or Türkiye.
Max. grant amount	The **maximum grant amount** is up to **€50 000** per grantee **based on the budget included in the application form.** The Project budget is part of the application form. The total amount you list will be fixed and will determine the grant you'll receive. The funding rate is **100%** of the budget included in your application form. The grant will be paid as a lump sum.

[1] An **SME** will be considered as such if it complies with the European Commission's Recommendation 2003/361/EC. As a summary, the criteria defining an SME are:
• Headcount in Annual Work Unit (AWU) less than 250;
• Annual turnover less or equal to €50 million OR annual balance sheet total less or equal to €43 million.
Note that the figures of partners and linked enterprises should also be considered as stated in the SME user guide. For detailed information check EU recommendation:
https://ec.europa.eu/growth/smes/business-friendly-environment/sme-definition_en

[2] an individual professional working in the area of CCI and heritage, such as freelancers (under civil contracts, in tax categories of influencers, etc.). More details can be found in the FAQs.

[3] Local footprint refers to demonstrating a presence in target (Hub) countries (Cyprus, Poland, or Türkiye) through elements like local staff, a branch office, residence, or a track record of work in the local context (e.g. through cultural organisations, etc.). This condition applies to applicants from other EU Member States and Horizon Europe Associated countries. For a more detailed explanation of 'local footprint' please check the FAQs.

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Number of grants and total funding available	We will support up to 6 Projects in this Open call. The total budget available for this Open call is **€300 000**.
Support programme	Our Support programme covers financial support of **up to €50,000** per project along with **technical mentoring and services** (including training, technology showcases, demonstration of hub infrastructure and tools, etc.) for a maximum duration of up to 6 months.
Duration of the Support Programme:	The Grant is offered together with the HERIFORGE Support programme. The Programme lasts up to 6 months.
Additional conditions related to who can apply?	Applicants under EU restrictive measures are ineligible. HERIFORGE partners and affiliates and employees cannot apply due to the conflict of interest.
How to apply?	Submit your proposal via our online form within the deadline. Your application must be in English, and all mandatory sections must be completed. Proposals can be modified after submission until the open call deadline. One applicant is allowed to submit up to 2 proposals, each addressing a different challenge. If more than one proposal was submitted, only the highest-scoring proposal will be considered for funding.

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Ground rules and formal requirements	When applying to the HERIFORGE 1st open call, please also note that the following conditions will be checked: 1. **Submission deadline:** Only proposals submitted through the online form before the deadline will be considered. 2. **Language requirement:** Proposals must be written in English. If mandatory sections are in another language, the proposal will be rejected. Non-mandatory sections in another language will not be evaluated, but the proposal will remain valid. (Except any portfolio & 'local footprint' evidence) 3. **Data accuracy:** The information you provide must be correct, complete, and allow proper evaluation. Extra material provided by you that was not requested in the form will not be considered. Although we may use other resources to verify that the provided data is true. 4. **Completeness:** Ensure all required fields are filled. You can edit your submission until the deadline, but no changes are allowed after that. 5. **European dimension:** Your proposal should align with EU goals and contribute to creating a positive impact within the EU. 6. **Conflicts of interest:** We will check for any conflicts of interest between applicants and Consortium partners. Partners, their affiliated entities, and their employees cannot participate. Each case of conflict will be reviewed individually. 7. **Financial stability:** Entities under liquidation, in financial difficulty, or excluded from receiving EU funding are not eligible. We also exclude companies in bankruptcy. 8. **Original work:** Execution of your project should not violate third-party IPR. It must be based on your intellectual property or you must be allowed to use third-party rights. IPR to the project can not be subject to any dispute. 9. **Gender Equality Plan (GEP):** Public bodies, universities, and research organizations from EU or Associated countries must have a GEP. 10. **Acceptance of rules:** By applying, you agree to the Open call Terms and Conditions outlined in this document.
More info about HERIFORGE	You can find more information about our Project on the HERIFORGE website. Open call is managed by FundingBox Accelerator sp. z o.o., and organised by the HERIFORGE Consortium partners. All documents - including the template of the Sub-grant Agreement can be found here.

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2. Submission and evaluation process

Only proposals submitted through the online form before the Call Deadline will be considered. You will receive an email confirmation if the form is submitted correctly. If not, contact us immediately.

Our evaluation process is transparent, fair and equal to all participants. We will evaluate your project in a few phases described below. We will inform you about the results of the evaluation as soon as they become available.

2.1 Initial Check

After the closure of the open call, the system will review your proposal to ensure it meets the Call Terms and Conditions (Section 1). This check will be based on the declarations in your proposal.

2.2 IN/OUT Screening

In case of a big number of applications or special needs of the project and JPRPs (Joint Pilot Research Projects,) the Selection Committee might decide to apply the In/Out Scope Screening. In this step, Consortium Partners will review the proposal's fit with the project scope and goals, more specifically:

- Scope (focus on an innovative technical solution in XR for heritage, local footprint and challenge alignment)
- European Dimension

A "Yes/No" approach will be used to assess those basic criteria, and non-compliant proposals will be rejected.

2.3 External Evaluation

Eligible proposals will be evaluated by 2 independent experts using predefined award criteria:

EXCELLENCE will evaluate:

- **Ambition**. The applicants have to demonstrate to what extent the proposed third party project contributes to the project scope, have an European dimension and is beyond the State of the Art. The applicant project has to describe the innovative approach behind it (e.g. ground-breaking objectives, novel concepts and approaches, new products, services or business and organisational models).
- **Innovation**: applicants should provide information about the level of innovation within their market and about the degree of differentiation that this project will bring.
- **Soundness of the approach** and credibility of the proposed methodology.

IMPACT will analyse:

- **Market opportunity**: The applicants have to demonstrate a clear idea of what they want to do and whether the new/improved product/service/solution has market potential, e.g. because it solves a problem for a specific target customer.
- **Competition:** The applicants have to describe the existing competitive landscape related to their project's focus and how their proposed solution differs from current approaches or offerings, and what makes it distinct, novel and advantageous.

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- **Commercial Strategy and Scalability**: The applicants have to demonstrate the level of scalability of the new/improved product meaning by not addressing a specific problem but able to be commercialised to solve a structural problem in a specific sector/process/etc.
- **Environmental and social impact**: The applicants have to demonstrate the project contribution towards environmental, social and economic impacts to contribute to sustainable development, Green Deal and other European policies.

IMPLEMENTATION:

- **Team**: The applicants have to demonstrate their management and leadership qualities, their ability to take a concept from ideas to market, their capacity to carry through their ideas and understand the dynamics of the market they are trying to tap into. The team should be a cross-functional team, with a strong background and skills base and taking into account its gender balance. In case of submission by a natural person, the applicant should define a team of collaborators which will work on the project.
- **Resources**. Demonstrate the quality and effectiveness of the resources assigned in order to get the objectives/work plan/deliverables proposed

Each criterion will be scored on a scale from 0 to 5, with evaluators providing individual reports and scores based on these criteria. Once the Individual Evaluation Reports are submitted, the final score will be calculated as an average of the individual assessments provided by each evaluator on each criterion.

For each criterion, the minimum threshold is 3 out of 5 points. **The maximum total score will be 15 points, with a minimum total threshold of 10 points.**

Ties will be solved using the following criteria, listed in order of priority:

- The highest score in the Impact Section.
- Gender balance among the personnel responsible for carrying out the activities.
- Implementation score

2.4 Jury Day - an online pitching session

Based on the ranking of proposals after the External Evaluation, around top **3 highest-scoring applications** for each challenge (or Hub) will be invited to an **online pitching session**, where you'll present your project, team, and vision in front of **the Selection Committee and External** experts and reply to their questions. Finalists will be ranked based on the following Awarding Criteria:

- Team vision and attitude
- Potential impact on the project's goals
- Positive effect on the applicant's processes, products, or services

2.5 Consensus Meeting

The Selection Committee, composed of consortium partners (CYI, FBA, KU, PSNC) and 2 external experts, will review and discuss the results of the experts' evaluations and the Jury Day. They will reach a consensus or majority of ⅔ votes on the list of proposals to be selected considering the evaluation scores and scope. The Selection Committee will review the ranking obtained from the External Evaluation/Jury Day.

The final decision will be made based on the pitch and evaluation results (see the criteria in sections 2.3 and 2.4). Applicants will be notified after the Jury Day about their status.

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Keep in mind that although the highest-scoring proposals are usually chosen for funding, the Selection Committee can reject a candidate for valid reasons, such as not fitting HERIFORGE goals and scope, limited potential impact, commercial competition issues, serious ethical concerns, or possible conflicts of interest. The exact number of proposals approved will be decided based on the overall **quality** of the proposals.

2.6 Formal check & Agreement signature

Finalists will undergo a formal check to confirm their legal status (e.g., company registration, financial documents, ownership structure, tax ID, etc.) and documentation of the evidence of local footprint. Therefore, we will ask you to provide documents to confirm all the details (these may include: company's registration document, tax ID number, ownership structure, financial statements, Bank Identification Form). Documents must be provided within the given deadline. If you don't deliver the requested documents on time, without a clear and reasonable justification, we will have to exclude you from further formal assessment.

After passing this check, we will invite you to sign the Sub-grant Agreement with the HERIFORGE consortium to officially participate in the programme.

3. After Sub-Grant Agreement signature

3.1 Payment conditions

The Grant will be paid in as a lump sum. Payments depend on the successful and timely completion of each stage of the work planned and outlined in the Individual Mentoring Plan developed at the beginning of the Support programme. Payments are scheduled in tranches as follows:

Stage 1: Up to 20% of the Grant Amount after Stage 1 (duration of 1 month)
Stage 2: Up to 50% of the Grant Amount after Stage 2 (duration of 3 months)
Stage 3: Up to 30% of the Grant Amount after Stage 3 (duration of 2 months)

3.2 Progress evaluation

We pay upon the delivery of the agreed results - not upon delivery of certain receipts. Therefore, Consortium Partners, gathered in the Selection Committee, will evaluate your progress regularly.

Stage	Explanation
Individual Mentoring Plan (IMP)	Within the first month of the Support Programme you will prepare an Individual Mentoring Plan (IMP), outlining the final budget, KPIs, and deliverables for performance assessment. It will also cover any specific Ethics Assessment requirements (if applicable). The IMP will be evaluated by the Selection Committee taking into account Deliverables quality (90%) and Deadline compliance (10%).

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Milestones' review	Before each payment, the Selection Committee will review your progress. Performance will be evaluated by Technical Partners and Ethics Partners (if applicable) based on: ● Deliverables quality (30%) ● Technical/Business KPIs (60%) ● Deadline compliance (10%) Each criterion will be scored from **0 to 10**, and the final score will be calculated based on the weights indicated. A score of **7 points** or more is required to continue in the program. For more details, please check the template of the Sub-grant Agreement.

4. Contact us

If you have any questions about our application process, feel free to reach out to us by email at heriforge.help@fundingbox.com.

Please note that responses are given individually and do not change these Terms, they are provided for informational purposes only.

In case of any technical issues or problems, please include the following information in your message:

- your username and email address;
- details of the specific problem (e.g. error messages you encountered, bug description, i.e. if a dropdown list isn't working, etc.); and
- screenshots of the problem.

5. Complaints

If you believe there was an error in one of the evaluation phases, you may submit a complaint within **three (3)** calendar days after sending the results to you. Send it, in English, to heriforge.help@fundingbox.com and include:

- your contact details (including email),
- the subject of your complaint,
- evidence of the specific issue.

Please note that we will review only complaints related to:

- errors in the process caused by our staff,
- technical issues beyond the applicant's control,
- clear human or mechanical errors made by our staff,
- incorrectly marked statements, minor clerical errors, and obvious typographical mistakes.

Please note that we will not review complaints related to the content of the expert evaluations.

Complaints will be reviewed within seven (7) calendar days. If more time is needed, we will inform you via email. Anonymous complaints or those with incomplete information will not be considered.

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6. Last but not least - final provisions

Any issues not covered by these Terms and Conditions are governed by Polish law, Horizon Europe Programme rules, and EU grant regulations.

We make our best effort to keep all provided data confidential; however, for the avoidance of doubt, you are solely responsible for indicating your confidential or sensitive information as such. Please be aware that your application form will be shared with the external evaluators and HERIFORGE Consortium partners.

You retain ownership of your intellectual property rights (IPR).

The signature of the Sub-grant Agreement is the initial condition to establish any obligations among applicants and any Consortium partners (with respect to the obligation of confidentiality of the application). The Sub-grant Agreement will include a set of obligations towards the European Commission (for example: promoting the project and giving visibility to the EU funding, maintaining confidentiality, and understanding potential controls by the EC/ECA, EPPO, and OLAF).

Please be aware that eligibility criteria will be checked throughout the process, including a final review and support programme.

In the event of any discrepancies between these Terms and their Annexes, the Terms shall prevail.

The HERIFORGE Consortium reserves the right to cancel or modify the call at any time, informing applicants accordingly.

Need more help? Contact us at heriforge.help@fundinbox.com, and we'll be happy to assist.

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Annex I

1. Technical description

The main goal of HERIFORGE is to develop a network of three interconnected place-based hubs in Poland, Cyprus and Türkiye providing a Research and Innovation environment for innovation in the Cultural and Creative Industries with the responsible use of XR (extended reality) technologies and cultural heritage for the benefit of social resilience.

HERIFORGE 1st Open Call is looking for innovative projects developing technical solutions in the use of immersive technologies for cultural heritage. The 1st Open Call will finance up to 6 Proposals to address specific Challenges defined by the HERIFORGE Hubs. The Challenges are the following:

1. HERIFORGE Hub Cyprus Challenge: Collaborative XR Experiences for Innovation in Cultural Heritage
2. HERIFORGE Hub Poland Challenge: Unlocking Interactive Stories: XR storytelling and gamification tools for cultural heritage
3. HERIFORGE Hub Türkiye Challenge: Reimagining Rituals: Volumetric Intangible Heritage for XR
4. HERIFORGE Hub Türkiye Challenge: Crafted Realities: Modular Immersive Heritage for Multi-Surface XR Spaces

Only technical solutions will be eligible. The application must clearly describe how the proposed innovation advances beyond the current state-of-the-art and provides a compelling solution to the challenge identified by the Hubs. The solutions can be e.g. software applications, artistic/museum installations, data interoperability systems, information management such as automation, integration, etc. Examples of proposals outside of scope include those focusing on social science solutions, theoretical research, frameworks, guidelines or policies.

The activities that qualify for financial support and fall within the scope of the HERIFORGE project should start at a Technology Readiness Level (TRL)[4] of 4-5 and aim to reach TRL 6-7 during the Support Programme. Applications at lower TRL may be accepted as long as the applicant presents the road map to reach the higher TRL level by the end of the project.

[4] TRL is a scale from 1 to 9 used to measure how mature or developed a technology is, from a basic concept (TRL 1) to a fully tested and ready-for-market solution (TRL 9). It helps funders understand how far along your technology is. For a detailed explanation, please consult the FAQs document.

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2. Challenges

Cyprus Hub CHALLENGE: Collaborative XR Experiences for Innovation in Cultural Heritage

SHORT DESCRIPTION:

This open call encourages eXtended Reality (XR) solution creators and service providers to collaborate with Cultural Heritage Institutions (CHI) and form consortia for co-designing immersive, interactive experiences grounded in tangible and intangible Cultural Heritage. Interested parties are welcome to form consortia that include at least one XR technology provider (who will act as the Beneficiary of the project) and a Cultural Heritage Institution (e.g., museum, archives and collections). Eligible activities under this call encompass the design and implementation of immersive XR experiences that enhance the interpretation and engagement with cultural heritage through interactive narratives and storytelling. Applicants are expected either to use existing 3D data belonging to CHIs or, where necessary, projects may also involve the digitisation of heritage assets to support the development of these experiences. A key focus of this call is the meaningful integration of cultural heritage assets into XR narratives to ensure a holistic and meaningful engagement with heritage. The core technical challenge of this call is to maintain high standards of geometric fidelity, platform compatibility, and rich narrative integration, while adhering to FAIR principles (Findable, Accessible, Interoperable, and Reusable). Projects may employ any XR modality (AR, VR, MR, WebXR), provided they aim to achieve the quality benchmarks and reuse targets outlined in this document.

REFERENCE INFORMATION:

CHIs and XR companies are expected to collaborate in either developing the XR narrative based on existing CH assets and data, or in digitising CH assets as per the proposed application's needs.

A list of references / good practices for digitizing CH assets is available in the links below:

- COMMISSION RECOMMENDATION (EU) 2021/1970 of 10 November 2021 on a common European data space for cultural heritage (Link)
- Fair Principles (link)

Upon request, CY HUB can provide access to its repository of existing 3-D models of historic monuments.

Monument	Dating	Original Form	Current Form
Church of the Monastery of Panagia of Tortosa	Early 14th century	Christian Church	Christian Church
Church of Panagia Odigitria (present-day Bedesten)	Circa 1300–1350	Christian Church	Marketplace
"Kastelliotissa" Hall	Late 14th century	Fortress/Castle	Fortress/Castle
Church of Chrysaliniotissa	Circa 7th–11th century	Christian Church	Christian Church
Famagusta Gate	1567–1570	Gate/Walls	Gate/Walls
Kyrenia Gate	1567–1570	Gate/Walls	Gate/Walls
Church of the Monastery of Augustinian Hermits (present-day Ömeriye Mosque)	Early 14th century	Christian Church	Muslim Mosque
Church of Saint Catherine (present-day Haydar Pasha Mosque)	14th century	Christian Church	Muslim Mosque
Cross of Missirikos	16th century	Christian Church	Muslim Mosque
Venetian Column – Piazza Superiore (present-day Atatürk Square)	1540–1550	Column/Square	Column/Square

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Church of Saint Savvas	1850	Christian Church	Christian Church
House of Hadjigeorgakis Kornesios	Circa 1793 - 1808	House	Ethnological Museum
Ömeriye Hammam	1570 -71	Hammam	Hammam

EXPECTED DELIVERABLES:

# No.	Item	Type	Description
D1	Quality Specifications	Quality Specifications Report	Specifications for 3D asset fidelity, platform compatibility, and FAIR compliance
D2	Validator / Optimisation toolkit	Validation Report (log file)	Blender / Unreal / 3Ds MAX / Unity plug-ins; Standalone freeware / Website tools standalone or web utilities validating 3D mesh density, texture limits, and metadata completeness
D3	3D asset pack (to be defined on a case by case condition based on potential IP requirements/restrictions of the CHI who may provide access to CH assets and libraries)	3D models, textures, metadata	Multi-LOD models of Project CH assets, licensed under CC BY 4.0. Time required for the production / per model
D4	Performance and usability/reuse evaluation	Performance Report	Benchmark results on FPS, latency, and user engagement
D5	Collaboration & Dissemination Package	Media and Documentation	60–90 sec trailer video Public outreach material Joint report describing the collaboration workflow

TECHNICAL SPECIFICATIONS:

The following specifications must guide asset preparation, optimisation, and delivery across targeted platforms. All numeric limits should be treated as maxima recommended but not mandatory, unless otherwise noted. Where categories diverge (e.g., Mobile WebXR versus PC-based VR), applicants must select and comply with the category most relevant to their primary deployment but are encouraged to strive for multi-platform compatibility.

To ensure real-time performance and avoid latency the following size limitations (no. of triangles) are suggested:

Category	**Mobile Devices (Smartphones, Tablets, HoloLens)**	**HMD (Untethered)**	**HMD (Tethered)**	**XR Technology**
Geometry Size (per Scene)	≤ 1M	≤ 1M	≤ 5–10M	AR, VR & MR
Geometry Size (LOD 0) (per Object)	≤ 15–30K	≤ 15–30K	≤ 30–80K	

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Category	Mobile Devices (Smartphones, Tablets, HoloLens)	HMD (Untethered)	HMD (Tethered)	XR Technology
Geometry Size (LOD 1) (per Object)	≤ 5–15K	≤ 5–15K	≤ 1K–5K	
Geometry Size (LOD 2) (per Object)	≤ 0.5–5K	≤ 0.5–5K	≤ 0.5K–1K	
Texture Size	512-1024px (2048 for important objects)	512-1024px	1024–4096 pixels	
FPS	> 60	> 90	> 90	

3D File Format:

For XR applications, the accepted formats are: .FBX, .OBJ
For WebXR applications, the accepted format is glTF 2.0 / GLB

Positional Accuracy:

To ensure historical and spatial integrity in digital representations, the following positional accuracy for raw data is advised:

Artefacts: ≤ 1 mm
Monuments: ≤ 10 mm

Materials and Textures:

All visual assets must follow a Physically Based Rendering (PBR) workflow.

Required Texture Maps:
Base Colour (Albedo or Diffuse); Height; Metallic; Roughness or Smoothness; Normal; Ambient Occlusion (AO); Emissive (if applicable); Colour Space: sRGB (glTF-compliant); Texture Resolution Tiers: 1024^2 → 4096^2 pixels; Compression: KTX2 for optimised loading and performance

Metadata:

Assets are encouraged to include rich, interoperable metadata following the Europeana Data Model (EDM) with 3D extensions.

Preferred requirements:
Provenance (object origin); Paradata (process and context documentation); Alignment with FAIR principles (Findable, Accessible, Interoperable, Reusable); IIIF v3 manifest (recommended for deep linking and interoperability)

XR runtime targets:

Latency ≤ 20 ms

Accessibility Compliance:

Applicants are encouraged to consider adding accessibility features to their application, following the below recommendations:

XR experiences should follow WCAG 2.2 AA standards, including: Text alternatives for all non-text content; Audio descriptions for key visual elements; Haptic affordances where appropriate.

Preservation Package:

To support long-term sustainability, each project must provide an archival folder including:
Raw 3D documentation data; Unoptimised .OBJ or .PLY models.

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REQUISITES:

Mandatory:

- Validation across proposed platforms (WebXR / standalone HMD).
- Assets released under a permissive licence (CC BY 4.0)
- Publication of validator log/report

Preferential:

- Follow the EU 2021/1970 quality suggestions for 3D CH digitisation - (Europeana publishing framework for content and metadata)
- Support for glTF 2024 PBR extensions

EXPECTED RESULT + IMPACT (target KPIs):

KPI	Baseline	Preferred Target	Verification
Validator[5] Pass Rate	≥ 90 %	≥ 95 %	Validator logs
Average FPS (Meta Quest 3)	≥ 70 FPS	≥ 90 FPS	On-device benchmark
Museums adopting outputs	8 within 12 months	12 within 12 months	Adoption letters Google forms, in one year's time after the project ends
User Satisfaction Score (0–10)	≥ 7.0	≥ 8.5	Survey analytics (including time spend within the experience)

[5] All submitted 3D assets must pass a validation process appropriate to their intended use. This includes, but is not limited to, validation checks for geometric fidelity (i.e., polygon count and topology), texture and material accuracy, file integrity (i.e.,format compliance and readability), and metadata completeness (provenance standards). Applicants should ensure their assets meet a minimum threshold pass rate in these validators to ensure interoperability, performance, and reuse across platforms.

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Poland Hub CHALLENGE: Unlocking Interactive Stories: XR storytelling and gamification tools for cultural heritage

SHORT DESCRIPTION:

Creating high-quality, historically accurate, and engaging immersive experiences in eXtended Reality (XR) is often complex, time-consuming and expensive. Polish cultural heritage institutions need easy to use and cost-effective tools that will enable a more reflective use of XR technology in museums, moving beyond mere attraction or superficial engagement.

This open call challenge calls upon innovators to develop prototype solutions that enable transforming static cultural heritage into dynamic, engaging encounters through immersive storytelling, gamification and interactive engagement. The expected products and/or services should go beyond simple digital reproduction and enable cultural and/or creative industry professionals to create immersive, gamified experiences that allow audiences of cultural institutions to actively discover, understand, and interact with cultural heritage.

We are looking for products and/or services that can be reproduced to many cultural institutions in a cost-effective manner. Within the project, the solution must be demonstrated and tested in cooperation with at least one Polish cultural heritage institution (e.g. museum, archeological site or gallery) providing an example gamified XR storytelling experience for its visitors. These can include e.g. games, immersive artworks, exhibitions etc.

During the implementation of the project, it is possible to use the laboratory equipment of PCSS i.a. 3D laser scanning, photogrammetry, motion capture, immersive sound (see details of the call and appendix).

EXPECTED DELIVERABLE:

The details of the deliverable will be agreed upon in M1 as part of the Individual Mentoring Plan (IMP).

No.	Item	Type	Description
D1 (M1)	IMP & Visual Mockup	Report + multimedia presentation or short video	Individual Mentoring Plan incl. use of Hub resources and support. Visual Mockup is a visual presentation of the envisioned solution concept. Depending on the project it can be e.g. multimedia presentation, video, storyboard.
D2 (M1)	Letter of support from cultural heritage institution	Legally signed document	Letter of intent or support or other type of contract expressing willingness of Polish CH institution to collaborate and/or test the solution.
D3 (M4)	Solution developed	Software/app (executable version) + technical documentation + Online demo	Executable version of a prototype solution together with technical documentation describing the prototype solution functionality, system architecture, technical requirements and

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			specification. Demo the solution with example XR experience content.
D4 (M6)	Final demonstration and report	Report + Case study + Video	Report summarising the final results of final demonstration and tests with end user CH institution (incl. feedback from end users, as well as the exploitation plan with a model for implementing the solution in other cultural institutions). Case study - short public report summarizing the project and results (acc. to template delivered by the project). Demo video (short video demonstrating the solution and its potential, incl. behind scene materials).
D5 (M6)	3D asset pack	3D models,assets, textures, metadata	3D models, textures, assets representing cultural heritage objects created within the project, including relevant metadata published under an open license.

REFERENCE INFO:

- Applicants are encouraged to reuse existing freely licensed cultural heritage digital objects from local, national and/or European repositories (e.g. Digital Repository of Scientific Institutes (RCIN), Polish Digital Libraries Federation (FBC), Europeana), or their own assets or datasets acquired during the execution of the project.
- A list of equipment and services that can be made available to participants in the Open Call to solve the challenge defined by the Polish Hub. The terms and conditions will be determined individually as part of an individual mentoring plan.

REQUISITES:

Mandatory:

- The proposed solution should be publicly demonstrated and validated/tested with a Polish cultural heritage institution (e.g. museum, gallery or archeological site).
- The solution prototype should use/support cost-effective XR devices and equipment currently available on the Polish market or that can be easily procured by Polish cultural institutions.
- In accordance with EU 2021/1970 recommendation, data representing cultural heritage digitalized within the projects should become and stay findable, accessible, interoperable and reusable ('FAIR principles') to accelerate data sharing. Inline with Europeana recommendations, 3D models, assets, etc. created within the scope of the projects that aim to reproduce public domain cultural heritage objects or sites and that are not subjected to new rights, should be delivered on an open license (minimum CC-BY 4.0). The assets should be delivered in standard formats (e.g. OBJ, FBX) compatible with popular 3D software and game engines, in the best possible quality.

EXPECTED RESULT + IMPACT (target KPIs):

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KPI	Description	Target	Verification
End-user/visitors demonstration	Number of users participating in demonstration/testing event	Min. 50	Photos from the event or other proof
End-user/visitors feedback	Number of feedback surveys	Min. 10	Post-demo survey (audience)

The above KPIs may be changed or expanded with new metrics during the IMP phase.

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Türkiye Hub CHALLENGE 1: Reimagining Historical Rituals: Volumetric Intangible Heritage for XR

SHORT DESCRIPTION:

This open call invites artists, designers, and creative technologists to explore how emerging volumetric media—particularly splat-based 4D point clouds, motion-driven reconstructions, AI generated movement representations—can be used to reinterpret and share intangible cultural heritage through immersive XR experiences. Participants will take on a dual challenge: first, to collaborate with a relevant cultural heritage institution or archival partners in order to access existing documentation or co-create new digital representations of embodied heritage practices, including rituals, crafts, dances, or gesture-based traditions. Using techniques such as Gaussian splatting, motion capture, or depth-based 3D generation, they will curate and design original XR experiences that reflect the spatial and multisensory dimensions of these cultural expressions. This challenge focuses on technical deployment: participants are expected to develop and publish their experiences across at least two XR platforms—such as mobile AR, WebAR/VR, passthrough MR, or room-scale VR—ensuring lightweight, performance-optimized distribution across different devices and contexts. Beyond these creative and technical goals, the open call also aims to gather insight into current workflows, infrastructure, and barriers within the immersive heritage ecosystem. Through a short reflection report, participants will be invited to document how they established collaboration with heritage partners, what tools and pipelines they used to generate and integrate volumetric data, and the challenges they faced in transforming these assets into interactive, multi-platform XR applications. These reflections will contribute to a broader understanding of how volumetric storytelling practices are emerging within cultural heritage and how we might better support them through shared resources, standards, and institutional frameworks.

REFERENCE INFO :

Technical benchmarks from KARMA Lab and XR validation tools.

EXPECTED DELIVERABLE:

D. No	Items	Type	Description
D1	XR Prototype	Software / App	A fully functional immersive experience (AR, VR, MR, or WebXR) that integrates volumetric representations of intangible cultural heritage using splats or other supported formats. The prototype should run reliably on at least two supported platforms (e.g., Meta Quest 3, mobile AR, WebXR).
D2	Source Files	Files + Documentation	The complete Unity or Unreal project files used to create the experience, including all metadata integrations, shaders, custom tools, and scene logic. Source folders should be clean, structured, and reproducible.
D3	Creator Report	Report	A written reflection (~2–4 pages) detailing the creative and technical workflow, challenges encountered, toolchains used, and collaboration process with the selected archival stakeholder. This report contributes to the research goals of HERIFORGE.
D4	Showcase	Video / Screenshots	60–90 sec demo reel + 3–5 screenshots for

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	Material		exhibition and documentation use

TECHNICAL SPECS :

Exchange formats:

glTF 2.0 / GLB (preferred for WebXR & mobile), USDZ (optional for iOS).

Structured project folders for Unity and Unreal are mandatory.

Volumetric media:

Preferred formats include splat-based reconstructions (e.g., Gaussian splatting), point cloud–driven volumetric video, or mesh-based mocap data (FBX, Alembic).

Rendering targets:

Unity Shader Graph, VFX Graph, or Unreal Niagara + custom volumetric viewers.

Geometry size:

≤150K tris per frame on Meta Quest 3; assets should include 2–3 LODs. Hero Assets: 5K–20K tris; Mid Assets: ≤8K; Props: <2K.

Textures:

PBR pipeline with sRGB + linear channel-packing. Texture resolution 512^2–2048^2, compressed using ASTC or Basis-U.

Metadata:

EDM, CIDOC CRM + 3D extensions. Required fields: provenance, creator, digitization method, paradata.

Performance specs:

≥90 FPS on Quest 3; ≥60 FPS on mobile/WebXR; ≤200 draw calls; <20ms motion-to-photon latency.

Audio:

Ambisonic or stereo (.ogg/.mp3); spatialized using Oculus Spatializer or Unity Audio. Ambient loop limit: 2 minutes.

REQUISITES

Mandatory:

Use of digitized CH datasets and/or new data created in collaboration with an institutional partner.

Integration of CH assets and metadata into the final XR application.

A presentation outlining the workflow and institutional collaboration (max 20 slides).

XR application must be deployable on at least 2 of the following: Meta Quest 3, WebXR, mobile AR.

Adherence to EU 2021/1970 quality targets for 3D CH digitization.

Minimum licensing of outputs; CC-BY 4.0 (creative assets) or OSI-approved license (code).

Submission of source files, documentation, demo video, and public showcase material.

Open-source or reproducible formats preferred.

Preferential:

Integration into Europeana or similar GLAM pipelines.

Support for glTF 2024 extensions (e.g., dispersion, anisotropy).

Use of shader-based motion enhancement or advanced volumetric rendering.

Provenance mechanisms (e.g., blockchain, PID).

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Environmental optimizations (GPU power, data weight).

EXPECTED RESULT + IMPACT (target KPIs):

KPI	Description	Target	Verification
Average FPS on Meta Quest 3	60 FPS	90 FPS	Performance benchmarks (Quest profiler)
Multi-platform volumetric reuse (VR + AR)	0	≥ 2 platforms supported per project	Cross-platform build verification
End-user experience score (immersion, clarity, impact)	0–10	7–9 / 10	Post-demo survey (audience)
Public XR showcases (festivals, online, installations)	0	≥ 2	Event participation reports

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Türkiye Hub CHALLENGE 2: Crafted Realities: Modular Immersive Heritage for Multi-Surface XR Spaces

SHORT DESCRIPTION:

This open call invites artists, creative coders, and immersive experience designers to create a site-specific digital artwork that reinterprets the cultural and material richness of a heritage site (building, site or place of cultural importance) and its associated intangible heritage. Participants will be provided with high-resolution photogrammetry data of an immovable heritage site —such as an excavation site or a historical monument/building—selected for its architectural detail and narrative potential. Participants may also propose their own dataset only if they secured open access use and reuse rights of the data related to the site and they can demonstrate it in the application stage.

Drawing from this built heritage pointcloud dataset which is expected to be an average of 1.5 billion points, participants are expected to demonstrate craft-based traditions such as architectural aesthetics, carving techniques, woodworking, tile-making, wall paintings, and to reinterpret these through immersive audiovisual storytelling.

The aim is to create an XR experience that weaves together the tangible and intangible, using spatial media to evoke both the atmosphere of the structure and the embodied knowledge embedded in its craft.

The core technical challenge lies in developing a modular and adaptive experience—one that can be exported and retargeted across diverse multi-surface projection environments with varying spatial layouts and resolutions, ranging from one to five walls. The final output should include both the immersive artwork and a flexible publishing framework, suitable for deployment in venues such as Ars Electronica's Deep Space (2-wall 8K projection), Hope Alkazar (4-wall 4K projection), and the Istanbul Digital Experience Museum (5-wall 4K LED setup). Compatible development environments include Unity, Unreal Engine, TouchDesigner, Notch, or similar XR authoring tools capable of supporting multi-display synchronization and resolution-agnostic deployment.

REFERENCE INFO:

High-resolution photogrammetry scans of a historical building/monument/site (multi-LOD)

Texture maps (wall paintings, ceramics, woodwork, stone carving details)

Documentation of possible immersive venue specs (projection maps, resolution profiles)

EXPECTED DELIVERABLE:

D. No	Items	Type	Description
D1	Immersive Digital Artwork	Software / App / Project Bundle	A completed immersive scene built with Unity, Unreal, TouchDesigner, Notch, or similar.
D2	Modular Export Pipeline	Framework / Script in Presentation Format	Tools or templates for adapting the artwork to different projection setups
D3	Technical Documentation	Report / PDF	Guide on how to retarget the experience for 1–5 wall environments
D4	Reflective Documentation	Report / PDF	Reflection on where the workflow broke, challenges faced, solutions found, tools and standards needed.
D5	Showcase Reel	Video / Assets	60–90 sec video teaser for demo/exhibition use

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D6	Deployment Package	Runtime Build(s)	Publishable formats for selected platforms (EXE, TouchDesigner project, etc.)

TECHNICAL SPECS :

Runtime Resolution Targets (or similar):

1-wall: 4K (3840×2160)

2-wall (Ars Electronica): Dual 8K (8192×4320 × 2)

4-wall (Hope Alkazar): 4 × 4K

5-wall LED (IDE Museum): 5 × 4K synced wall output

Supported Output Modes:

Synchronized multi-display setups

SMPTE timecode / OSC / NDI-based sync

Modular media export presets (resolution, aspect ratio, screen config)

Performance Specs:

60 FPS minimum for real-time rendering

Scene frustum logic adaptable per wall setup

Efficient GPU handling for LED walls or edge-blended projections

Audio:

Multichannel / Binaural support

Optional: Spatial audio routing for multi-wall diffusion setups

Formats:

Executables for PC-based playback

.tox (TouchDesigner) / Unity/Unreal source project folders with publishing presets

REQUISITES

Mandatory

Usage of any dataset for a Built Heritage. Pointclouds should be used with an average 1mm resolution: interior, exterior facades, surrounding. Data around 30-70 GB (Average: 1.5B points).

Produce at least one immersive scene and demonstrate export for at least 2 spatial formats.

Demonstration of the workflow with a presentation (not exceeding 20 slides).

Include technical documentation and scene-publishing tools/templates.

License outputs under CC BY-NC-SA or equivalent.

Publish one online public demo video and provide a full source archive.

Preferential

Use suggested tools: Unity, Unreal Engine, TouchDesigner, Notch or similar.

Support for remote projection mapping with OSC, NDI, or Spout

Adaptive audio mixing across formats (stereo, 5.1, spatial)

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Use of procedural storytelling based on craft sequences (e.g., brush strokes, tile-making loops)

Energy-efficient design for LED deployment (Green-XR alignment)

EXPECTED RESULT + IMPACT (target KPIs):

KPI	Description	Target	Verification
Artwork compatibility with immersive wall setups	1	≥ 2 formats successfully supported	Deployment log, video proof
Modular export framework reusability	0	≥ 1 tested toolset (reusable by others)	Documentation review
Minimum frame rate across setups	Variable	60 FPS	Performance benchmark reports
Visual fidelity retention across projection types	Not assessed	≥ 50% spatial content coverage	Curatorial / technical review
Public showcases using delivered content	0	≥ 2 public installations	Event confirmation / audience reports

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3. Polish Hub Resources Offer

A list of equipment and services that can be made available to Heriforge 1st Open Call Applicants applying to solve a challenge defined by the Polish HUB.

1. Equipment available stationary in the PCSS laboratories

1. Access to multimedia laboratory
    a. Visualization with projectors, screens, lighting, VR
    b. Multi-speaker installation (surround sound, ambisonic sound)
2. Access to recording laboratory
    a. Sound recording (various microphones, ambisonic microphones)
    b. Image recording (video cameras, photo cameras, 360° cameras)
    c. 3D scanning (photogrammetry, point clouds, mesh)
3. Access to the Motion Capture equipment (Optitrack)
4. Additional devices
    a. VR goggles: Oculus Quest 3, Meta Quest Pro, Pimax Crystal
    b. XR Goggles: Vive XR elite
    c. Haptic devices: Touch DIVER, bHaptics Tactsuit, Woojer Vest
    d. EEG sensors: Unicorn Hybrid, Mindrove ARC
    e. Depth cameras: Kinect One

2. Enabling Projects with Imaging, Audio, and Immersive Technology Services

1. Scanning of space - point clouds
2. Scanning of objects - 3D models
3. Photogrammetry from a drone photos
4. Lidar scanning from a drone
5. Films and photos from a drone
6. Motion Graphics
7. Production of audio and video recordings
8. Production of surround sound recordings and 360° and VR images
9. Support for post-production of sound recordings and their adaptation to multi-speaker installations
10. Support for designing and implementing installations based on mapping technologies and surround sound
11. Support for interaction prototyping (Touch Designer, Max MSP)
12. Support for the creative team and creative-technological mentoring (experience in the practical application of immersive technologies in a cultural environment)
13. Support for production in the field of implementation of immersive technologies in culture

3. Terms and conditions

1. The equipment and services listed above are made available exclusively to beneficiaries of the Open Call, for the purposes of developing and implementing their proposed solutions.
2. Access is granted in accordance with PCSS laboratory guidelines and schedules.
3. All equipment and facilities must be used responsibly, and according to the instructions provided by PCSS staff. Any damage resulting from misuse will be the responsibility of the beneficiary.
4. Access to specific equipment, laboratories, and services is subject to availability and must be scheduled in advance in coordination with PCSS staff.
5. PCSS and the Polish HUB reserve the right to suspend or terminate a beneficiary's access to equipment and services.
6. PCSS and the Polish HUB reserve the right to modify these terms and conditions at any time.

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