



HERIFORGE D5.2

HERIFORGE Impact Assessment and Sustainability Strategy

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Executive summary

This document constitutes Deliverable 5.2 – *Impact Assessment and Sustainability Strategy* under Task 5.3 – *Sustainability, Impact, and Exploitation* within the HERIFORGE project. Its primary purpose is to assess the project's progress towards achieving its intended impacts and to initiate the development of a structured exploitation strategy centred on the HERIFORGE Hubs.

Task 5.3, led by IBL PAN with contributions from **PSNC, FCC, A2S, FBA, Cyl, NDA, ACTE, KU, and DVM**, plays a critical role in bridging the gap between the project's implementation phase and its long-term sustainability. As the project reached its one-year milestone (M12), this task was formally launched to ensure continuity, stakeholder engagement, and long-term value creation beyond the project lifecycle.

The document reflects an iterative and evolving process, and is deeply informed by the work done in T4.1, T4.2, T2.1, T2.2 and T5.1. Work on Task 5.3 began in M12 (December 2025) with the development of a KPIs (Key Performance Indicators) monitoring and an initial round of discussions on Project Impact (PIs). This was followed by dedicated T5.3 team collaboration and a workshop in March 2026.

Importantly, this Deliverable represents an early-stage assessment produced during a period of intensive operational activity across the project. As such, it establishes a baseline for further refinement rather than a final evaluation. Future iterations will deepen the analysis and align more closely with the operational performance of the Hubs once they enter full activity. At the same time, it is important to emphasize that D5.2 is **not a standalone or final document**, but part of a **continuous and iterative process**, which will be further developed and refined in the subsequent deliverable: **D5.4 – Updated Impact Assessment and Sustainability Strategy** (M36), which will present updated main conclusions from the impact assessment of key project activities and form the basis for the final exploitation strategy.

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List of acronyms

Acronym	Description
KPI	Key Project Indicators
AR	Augmented Reality
AI	Artificial Intelligence
PII	Project Impact Indicators
PI	Project Impact
KER	Key exploitable results
IPR	Intellectual Property Rights, intellectual property rights
SDG	Sustainable Development Goals
SME	Small and Medium-sized Enterprises
M	Month
JPRP	Joint Pilot Research Project
VR	Virtual Reality
XR	Extended Reality
GA	Grant Agreement



1. Introduction

The conceptual foundation of this deliverable is rooted in the **project's impact framework**. HERIFORGE has established a set of expected impacts, supported by **Key Exploitable Results (KER)**, **Project Impact (PIs)** and **Key Performance Indicators (KPIs)** defined in the project's Grant Agreement, and developed during the project lifecycle. These elements collectively represent the project's intended trajectory. The central purpose of D5.2 is to evaluate whether activities conducted so far align with these objectives, determine the extent to which the project is progressing towards achieving them, and design the ideas for lasting impact.

In pursuit of this objective, this **deliverable adopts a participatory and iterative methodology**. The process began in M12 (December 2025) with the establishment of a KPIs monitoring framework and an initial internal review of PIs. A dedicated internal **meeting** was organised to ensure a consistent and shared understanding of Key Performance Indicators across the consortium. This included a focused discussion within the team, followed by broader alignment with partners, during which KPI definitions were clarified and linked to the project's Key Exploitable Results, relevant tasks, and Deliverables. As a result, a structured **KPI mapping framework** was developed in the form of a shared consolidated tracking table, connecting each KPI with its corresponding KER, contributing tasks, and expected outputs. This work also builds on and complements the KPI monitoring table developed by PSNC, which supports ongoing tracking and reporting of progress. The process not only ensured internal consistency, but also provided a practical tool for monitoring implementation, assigning responsibilities, and supporting the transition from planned activities to measurable impact.

This was followed by a series of structured discussions and collaborative activities, including Task 5.3 team meetings, and a dedicated Task 5.3 workshop conducted in March 2026. These efforts are complemented by planned consortium-wide workshops in April 2026 and April 2027, as well as annual impact assessments, ensuring continuous validation and refinement of the project's strategic direction.

It is important to highlight that this deliverable has been developed during the early operational phase of the project. At this stage, the consortium is engaged in intensive implementation activities across all work packages. As such, this document represents a baseline assessment rather than a final evaluation. It captures the current state of progress, and identifies emerging patterns while recognising that a more comprehensive analysis will be possible as the project and its outputs mature.

Certain components of the strategy are already identified as essential for the final version of this Deliverable (Month 36) but are not yet fully developed at this stage due to the current availability of data and the early phase of project implementation. These areas are therefore explicitly signalled in this document to ensure transparency and continuity of work. In particular, further development will be required in relation to: **Intellectual Property Rights (IPR) sharing**, including the **legal framework for Cultural Heritage (CH) assets and stakeholder agreements**; **stakeholder-oriented exploitation strategies**, together with tailored approaches for key target groups and operational guidelines for the HERIFORGE Hubs. Further work will also be expected on **publication and communication planning**, entailing reporting mechanisms and dissemination of the exploitation strategy. At this stage, these components are introduced at a conceptual level, outlining their scope and relevance, while detailed analysis, frameworks, and operational models will be developed in subsequent iterations of the Deliverable (M36). Future updates will incorporate



additional data, insights from ongoing activities, and evidence generated through Hubs operations, enabling a more comprehensive and mature assessment of the project's impact and sustainability.

This Deliverable is strongly interconnected with other tasks and work packages, reflecting the inherently collaborative and cross-cutting nature of impact and exploitation planning within the HERIFORGE project. The development of D5.2 is not carried out in isolation, but through continuous coordination and exchange across Tasks and teams, ensuring alignment between conceptual frameworks, operational models, and stakeholder-oriented strategies. In this context, the consortium has identified a particularly important synergy between other two key Deliverables. These include: **D4.2 – Common Organisational and Governance Models (COGM) of the HERIFORGE Hubs Network**, which defines how the Hubs will be structured and governed and **D2.2 – Ecosystems Strategy**, which outlines the approach to innovative and responsible reuse of Cultural Heritage through XR technologies.

In summary, these deliverable lays the groundwork for a continuous impact assessment process and provides the strategic orientation necessary to ensure that HERIFORGE results are effectively exploited, sustained, and translated into long-term value through the HERIFORGE Hubs.

2. Designing for Lasting Impact

The HERIFORGE project has been designed around a clear and structured impact logic, in which expected impacts are translated into concrete actions, measurable indicators, and exploitable results. This approach ensures that impact is not treated as an outcome at the end of the project, but as a guiding principle embedded throughout all Work Packages (WPs) and activities. Ultimately, the HERIFORGE approach to impact is based on the assumption that lasting impact emerges from the interaction between strategic frameworks (WP2), technological innovation (WP3), ecosystem and governance structures (WP4), and dissemination and exploitation mechanisms (WP5). These elements converge in the HERIFORGE Hubs, which will act as the primary vehicles for sustaining and scaling project results beyond its duration.

The five KERs identified in HERIFORGE are distributed across multiple WPs, reflecting the integrated nature of the project:

1. **KER1: Strategic impact package** (WP2, WP4 – D2.1, D2.2, D2.3, D4.1), providing policy-oriented and strategic frameworks for long-term adoption by the Hubs;
2. **KER2: XR-driven prototypes and services** (WP3, WP4 – D3.2, D3.3, D4.3), delivering technological solutions for innovative reuse of Cultural Heritage (CH);
3. **KER3: HERIFORGE Hubs Network** (WP4 – D4.1, D4.2), establishing the organisational and operational backbone for long-term exploitation;
4. **KER4: Guidelines for innovation ecosystems** (WP1, WP4 – D1.1, D4.4), ensuring human-centric, trustworthy, and responsible innovation practices;
5. **KER5: Data Orchestration Platform** (WP3 – D3.2), enabling interoperability and reuse of CH data across applications and sectors.

These results are designed to address the needs of the project's five main target groups: Business & Industry, Cultural Heritage sector, Policymakers, Research, and the Public – ensuring that impact is both multi-dimensional and stakeholder-driven. The project adopts a quadruple helix model, integrating these



groups into a shared innovation ecosystem that supports co-creation, knowledge transfer, and long-term sustainability.

The pathway towards impact is operationalised through five interconnected Project Impacts, which structure the project's long-term ambitions:

1. Wider reuse of CH resources through digital technologies,
2. Enhanced cross-border research and innovation connectivity,
3. Better-aligned strategies for digitally enabled CH reuse,
4. Stronger links between academia and business,
5. Responsible implementation of Virtual Worlds.

Each of these impact areas is supported by specific KERs and implemented through coordinated activities across WPs. For example, WP3 (technology development) and WP4 (ecosystem and hubs development) jointly enable the creation and scaling of XR solutions (PI1, PI5), while WP2 (strategy) and WP4 contribute to policy alignment and ecosystem structuring (PI2, PI3). WP1 provides horizontal guidance on ethics, trustworthiness, and innovation, ensuring coherence across all activities (see: **Figure 1**. The impact bridge).

Designing for lasting impact also requires addressing the identified systemic challenges and barriers. These include data quality and interoperability issues (addressed in WP3 through the Data Orchestration Platform), governance and IP complexities (addressed across WP1, WP4, and WP5), resource intensity of ecosystem building (addressed through governance models in WP4), and the need for coordinated, agile management (ensured through cross-WP collaboration).

Crucially, impact maximisation is further supported by WP5, which integrates dissemination, exploitation, and communication measures. Activities under T5.1 and T5.2 ensure visibility, stakeholder engagement, and uptake of results through publications, events, open calls, and communication campaigns, while Task 5.3 builds on these foundations to assess impact and guide long-term sustainability.

From the perspective of this Deliverable, designing for lasting impact is based on the the structure defined in the GA, but it focuses on how the consortium operationalises and validates this structure in practice. This includes continuous alignment among WPs, iterative assessment of progress against KPIs and PIs, and active stakeholder engagement through workshops and collaborative activities.



The Impact Bridge – How T5.3 drives HERIFORGE sustainability

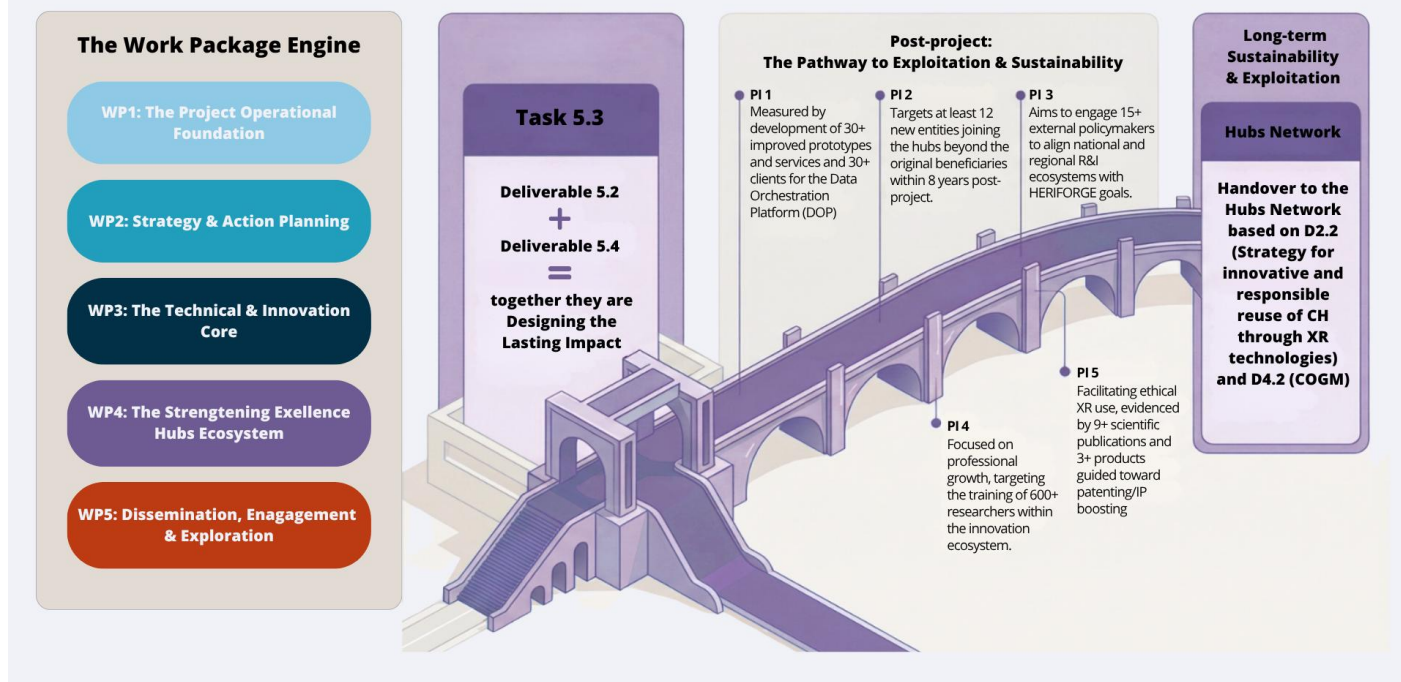


Figure 1. The impact bridge.

The above section establishes the HERIFORGE approach to impact. Building on this conceptual framework, it is essential to ensure a robust and systematic approach to impact assessment. HERIFORGE therefore adopts a combined methodology integrating **quantitative indicators** with **qualitative, evidence-based assessment**, enabling both measurable tracking of progress and deeper understanding of emerging effects within the ecosystem. The following sections detail this approach and present the mechanisms through which impact will be monitored, analysed, and iteratively refined throughout the project lifecycle.

2.1. Quantitative Metrics

The HERIFORGE project establishes a clear and structured system of **quantitative metrics** to monitor progress towards its expected impacts, primarily through the use of **Key Performance Indicators** and **Project Impact Indicators** defined at the Grant Agreement level. These indicators are directly linked to the five Project Impacts (PI1–PI5), covering dimensions such as the number of developed prototypes and services, stakeholder engagement (e.g. policymakers, researchers, business), participation in ecosystem activities, and uptake of technological and strategic outputs.

For example, measurable targets include the number of XR-driven solutions, workshops and trainings, entities joining the Hubs, researchers trained, or services reaching market readiness. These indicators provide a **measurable and comparable baseline** for assessing whether the project is progressing towards its goals of achieving structural changes in innovation ecosystems, increased cross-border collaboration, and strengthened links between academia and business. Importantly, these metrics extend beyond the project lifetime, with a 5-year horizon, reinforcing the long-term orientation of impact assessment.



2.2. Qualitative Metrics

At the same time, the HERIFORGE approach recognises that **quantitative metrics alone are insufficient** to capture the complexity of ecosystem transformation and innovation processes. Therefore, impact assessment also relies on **qualitative and process-oriented dimensions**, embedded in the project methodology.

In particular, the pathway towards impact is supported by iterative validation mechanisms such as **Joint Pilot Research Projects (JPRPs)**, **Open Calls**, and continuous stakeholder engagement activities across WPs. These mechanisms enable testing, refinement, and contextualisation of project assumptions through real-life experimentation and collaboration. The JPRPs, in particular, are designed not only to deliver technological outputs but also to **generate evidence of collaboration, knowledge transfer, and ecosystem alignment**, thus serving as a critical feedback loop for strategy development and impact validation.

Furthermore, activities such as workshops, co-design sessions, and cross-hub exchanges facilitate shared reflection, mutual learning, and dissemination of good practices, which are essential for building trust and ensuring long-term sustainability of the Hubs. From the perspective of Task 5.3, these qualitative insights are key to understanding not only *what* impact is achieved, but *how* it emerges – and whether the project is effectively transitioning from outputs to meaningful and sustained outcomes.

2.3. 5-year horizon after the project ends

A defining feature of the HERIFORGE impact framework is the adoption of a **5-year horizon beyond the project's completion**, which reflects the understanding that meaningful and structural impact cannot be fully captured within the project's implementation timeframe. Many of the expected outcomes – such as ecosystem maturity, market uptake of XR solutions, policy alignment, and sustained cross-sector collaboration – require time to stabilise, scale, and demonstrate measurable effects. The inclusion of post-project indicators therefore allows for a more realistic and credible assessment of impact, extending beyond immediate outputs towards long-term transformation.

This long-term perspective is intrinsically linked to the **operationalisation of the HERIFORGE Hubs**, which are designed to act as the primary vehicles for sustaining and exploiting project results. As the project transitions into its exploitation phase, the responsibility for continuing activities, maintaining networks, and generating impact will be defined and described in the **D4.1¹ – Hubs' Profiles and Inclusivity Strategies**.

From an impact assessment perspective, this means that the measurement of success will increasingly depend on the **performance and sustainability of the hubs as independent yet interconnected entities (Hub's Network)**. Indicators such as the number of services developed, stakeholders engaged, or collaborations established will continue to evolve after the project ends, reflecting the hubs' ability to function as living innovation ecosystems.

¹ Hubs' Profiles and Inclusivity Strategies; https://www.heriforge.eu/wp-content/uploads/2025/11/HF_ALL_4_D4.1_KU_Hubs-Profiles-Strategy_deliverable_SUB.pdf



Recognising this, Task 5.3 has already initiated work on **conceptualising and preparing**, exploring mechanisms for sustaining engagement, and sharing ideas for the future outputs. This includes early reflections on governance with T4.1, stakeholder commitment, and practical approaches to maintaining momentum beyond funded activities. While these elements will be further developed in subsequent iterations of D5.2, their early consideration is essential to ensure that the project's impact is not only achieved, but also **sustained and expanded over time**.

3. Target groups – stakeholders

The HERIFORGE project identifies five key target groups that are essential to fostering innovation at the intersection of cultural heritage and extended reality (XR). These include:

1. **Business and Industry** actors such as SMEs, startups, CCIs, XR companies, and creative sectors;
2. **the Cultural Heritage sector**, including GLAM institutions, cultural organisations, and artists;
3. **Policymakers** at the regional and national levels;
4. **Research** actors such as research-performing organisations and individual researchers;
5. the broader **Public**, encompassing citizens, tourists, and younger audiences.

The stakeholder mapping conducted within D4.1 (*Hub's Profiles and Strategy*) provides a nuanced understanding of the roles, capacities, and expectations of different actors within the HERIFORGE ecosystem. A key analytical tool used in this process is the **Influence–Interest Matrix**², which enables differentiation of stakeholders based on their ability to shape outcomes (influence) and their level of engagement with project activities (interest).

The results of this analysis indicate a **structurally differentiated ecosystem**. Public institutions, including policymakers and governmental bodies, are characterised by a high level of influence, particularly in shaping regulatory frameworks, funding priorities, and long-term strategic alignment. At the same time, their level of direct engagement in innovation processes may vary, requiring targeted approaches to ensure their sustained involvement. In contrast, private sector actors – particularly SMEs, startups, and creative industries – demonstrate a strong interest in the project, driven by opportunities for innovation, market expansion, and access to resources. However, their influence on systemic conditions is comparatively more limited. Academia and civil society actors occupy an intermediate position within this landscape. Research organisations play a crucial role in knowledge production, validation, and transfer, while also contributing to innovation processes. Civil society and cultural actors, including cultural heritage institutions, contribute to societal relevance, public engagement, and contextualisation of project outcomes. Together, these groups act as **bridging actors**, facilitating interaction between highly influential and highly engaged stakeholders.

This differentiated structure reinforces the need for **tailored engagement strategies**, rather than a uniform approach to stakeholder involvement. High-interest stakeholders, particularly within the private sector, benefit from active participation in co-creation processes, including Open Calls, and JPRPs. High-influence stakeholders, such as policymakers, require strategic alignment mechanisms, including consultation processes, policy dialogue, and involvement in shaping strategic outputs. At the same time, broader

² D4.1, Figure 5: “Influence–Interest Matrix - All Stakeholders by Quadruple Helix and Type”, p.15.



stakeholder groups require continuous communication, capacity building, and awareness-raising activities to ensure inclusivity and long-term engagement.

Overall, the stakeholder dynamics identified in D4.1 confirm that **impact generation in HERIFORGE depends on managing these differentiated roles effectively**, ensuring that influence and interest are aligned through appropriate engagement mechanisms.

3.1. Linking impact areas to target groups

The mapping of target groups and impact areas reveals a strong and systematic interdependency between the types of impact pursued by the project and the stakeholders involved in their generation and uptake. This relationship is central to the HERIFORGE impact logic, as it ensures that each impact pathway is directly connected to specific stakeholder needs and capacities.

1. Technological and innovation-related impacts are primarily directed towards industry actors, research organisations, and cultural heritage institutions. These groups are directly involved in the development, testing, and application of XR technologies and digital infrastructures, making them key drivers of innovation.
2. Economic impacts, in turn, are most strongly associated with SMEs, startups, and creative industries, which are positioned to translate technological outputs into marketable products and services.
3. Societal and cultural impacts are centred on the general public and cultural communities, who benefit from improved access to cultural heritage, enhanced engagement, and new forms of participation enabled by digital technologies.
4. Policy-related impacts are primarily addressed to public authorities and governance bodies, which play a critical role in integrating project results into strategic frameworks, investment plans, and regulatory environments.

At the same time, ecosystem-level impacts cut across all stakeholder groups, reflecting the project's ambition to create a **fully integrated, cross-sectoral innovation environment**. The HERIFORGE Hubs Network, as a central structural output, exemplifies this by bringing together actors from different sectors and enabling sustained collaboration beyond the project lifecycle.

3.2. Benefits for stakeholders

An important element of the HERIFORGE impact framework is the **clear identification of tangible benefits** for each target group, ensuring that project activities translate into meaningful value creation. These benefits are not only outputs of the project but also drivers of engagement, adoption, and long-term sustainability, directly influencing the extent to which impact can be achieved.

1. For **Business and Industry actors**, including SMEs, startups, and creative industries, project provides a structured environment for innovation. This includes access to open calls, new business opportunities in the cultural heritage (CH) and XR domains, and integration into a broader network of partners across Europe. Importantly, the project enhances the quality and usability of CH datasets, aligning them with XR applications and responsible reuse principles. Combined with dedicated



support for developing new products and services, this creates favourable conditions for market-oriented innovation and scaling.

2. For the **Cultural Heritage sector**, the project addresses both technological and audience-related needs. Institutions benefit from support in digitisation processes and access to advanced XR tools and laboratories, enabling new forms of heritage interpretation and reuse. The integration of multimedia and immersive technologies contributes to enhancing narratives and storytelling capacities, while also supporting the development and diversification of audiences. This strengthens the role of CH institutions as active participants in digital innovation ecosystems.
3. In the case of **Policymakers**, the project facilitates knowledge sharing on emerging digital technologies and innovation trends, providing evidence and insights that can inform policy development. By demonstrating the potential of XR and CH integration, HERIFORGE contributes to enhancing the attractiveness and competitiveness of regions, supporting economic growth and aligning with broader strategic priorities at national and European levels.
4. For the **Research community**, HERIFORGE offers access to high-quality CH resources, technical infrastructures, and collaborative environments, including XR laboratories. This enables not only the advancement of research but also greater opportunities for the exploitation of research outputs in applied and business contexts, strengthening the link between academia and industry.
5. Finally, the **Public** benefits through improved access to cultural heritage, particularly in cases where sites are contested, fragile, or physically inaccessible. Through XR-based applications, users gain new forms of engagement with heritage, enhanced learning opportunities, and experiences that contribute to societal well-being. This dimension is particularly important in ensuring that technological innovation translates into inclusive and socially relevant impact.

4. Mapping Foregoing Impact – Workshop-Based Assessment Across the Three Hubs

As part of the work under Task 5.3, the task leader conducted a dedicated workshop to begin a more practical and structured reflection on impact across the three local HERIFORGE Hubs in **Cyprus, Poland, and Türkiye**. The purpose of this exercise was to move from the general impact logic defined in the GA towards a more grounded assessment of what has already been initiated, what kinds of stakeholder relations are emerging, and how project activities may begin to translate into tangible effects within each local ecosystem.

This workshop-based mapping was designed as an **initial impact intelligence exercise**, enabling partners to collectively reflect on early impact signals already visible in the project's implementation phase. Rather than measuring only formal indicators, the exercise focused on identifying the **existing pathways of engagement, influence, and expected change** emerging locally through project activities. In this sense, it serves as an important connection between the GA-level impact framework and the more operational, evidence-based assessment that D5.2 aims to develop over time.

The exercise was structured around **three complementary dimensions**.

The **first dimension** focused on **stakeholder engagement and emerging effects**. Using the HERIFORGE target groups as a shared framework, partners were invited to identify which stakeholders they have already been in contact with, through what kinds of activities, and what the observable or expected effects of these



contacts are. This part of the exercise aimed to capture the early relational and ecosystem-level dynamics essential for long-term impact that are often not yet reflected in quantitative indicators. This exercise was designed to monitor the project's local contacts with stakeholders besides the activities conducted in the first 6-months of the project, especially after interviews (T2.2, T4.2) and stakeholder mapping (T4.2).

The **second dimension** addressed the **project's contribution to outcomes and wider impacts**. Here, partners reflected on how the activities undertaken so far may contribute to the outcomes and impact areas defined in the GA. This included consideration of whether current actions are already supporting stronger collaboration, increased uptake of XR and CH innovation, policy relevance, ecosystem building, or other dimensions of expected change.

The **third dimension** focused on **deliverable-based reflections on impact and target groups**. In this part, participants considered how specific deliverables and work carried out across different tasks and work packages relate to stakeholders and generate impact. This was intended not only to identify outputs, but also to reflect on their practical relevance, expected uptake, and contribution to shaping impact pathways across the three hubs.

Taken together, these three dimensions provide a first structured basis for understanding **foregoing impact** in HERIFORGE – that is, impact that is not yet fully measurable, but can already be traced through stakeholder interactions, emerging outcomes, and the strategic relevance of the project's outputs. The exercise also supports comparison across the three local hubs, while respecting their different contexts, stakeholder constellations, and stages of ecosystem development.

4.1. Stakeholder Engagement and Emerging Effects

The first workshop exercise focused on identifying existing stakeholder engagement across the three HERIFORGE Hubs and analysing the immediate and emerging effects of these interactions.

Using the predefined HERIFORGE target groups as a common framework, partners from Cyprus, Poland, and Türkiye were asked to reflect on two key questions: **who has already been contacted** within each stakeholder group, and **what has been the effect of this engagement**. The exercise revealed that, even at this relatively early stage of project implementation, a wide range of interactions has already taken place, generating initial outcomes such as awareness raising, knowledge exchange, early collaboration, and in some cases, concrete involvement in project activities.

Across the three hubs, engagement activities reveal differentiated approaches shaped by local contexts and capacities. In Cyprus, the emphasis lies in **building confidence among stakeholders**, due to high competition in such a small market) and **turning CHI-SME collaboration into a standard practice**, while Poland shows a **stronger integration of stakeholders into ongoing project activities**. Türkiye reflects a **highly dynamic and outward-facing approach**, with extensive outreach and continuous exchange with a wide range of actors. Although these approaches vary, all hubs demonstrate a gradual shift towards **deeper collaboration and more structured involvement**. Collectively, this indicates a progressing alignment across hubs, laying the groundwork for more consistent and measurable impact in subsequent phases.

Importantly, the findings show that stakeholder engagement is not uniform across groups or hubs, but rather reflects different entry points, local ecosystem dynamics, and levels of maturity. In many cases, interactions



begin with information sharing and awareness raising, but progressively evolve towards more structured forms of collaboration, including participation in Joint Pilot Research Projects (JPRPs), Open Calls, events, and co-creation activities. At the same time, the exercise also highlighted challenges, such as the need to build trust over time or maintain continuity of engagement beyond initial contact.

Overall, this mapping provides a first insight into **how impact pathways are being activated in practice**, through concrete relationships with stakeholders, and how these interactions may evolve into more measurable outcomes in later stages of the project.

4.1.1. Cyprus

In the Cyprus Hub, stakeholder engagement has been initiated across all five target groups, with a strong emphasis on **awareness raising, consultation on existing collaboration cases, and trust-building processes**. A diverse range of actors has been engaged, including business representatives such as PwC Experience Centre and the Cyprus Chamber of Commerce and Industry (KEBE), cultural heritage institutions such as the Municipality of South Nicosia–Idalion, the A. G. Leventis Foundation, and the New Cyprus Museum, XR companies, as well as policymakers (Department of Antiquities), research organisations (University of Cyprus and CyENS Centre of Excellence), as well as members of the public.

These interactions focused not only on **informing stakeholders about the HERIFORGE project, initiating dialogue, and exploring potential collaboration opportunities** but also to initialise **dialogue with all said stakeholders to elicit knowledge about their experiences from their everyday operations**. In the case of business actors, discussions have included funding opportunities and possible involvement in innovation activities. Engagement with cultural heritage institutions has involved both information exchange and initial steps towards collaboration, including the use of questionnaires to better understand needs, technical aspages that limit collaboration opportunities as well as their expectations. Similarly, interactions with policymakers and research organisations have focused on knowledge sharing and alignment with existing initiatives in XR and digital heritage in order to embrace them into our process of impacting policy landscape in the country.

An important insight emerging from the Cyprus Hub is that **stakeholder engagement is a gradual process**, particularly in terms of building trust. While initial contact and interest are relatively easy to establish, maintaining engagement requires sustained effort, follow-up, and clear value propositions due to the tight operational schedules of all parties involved and limited budget availability. The workshop also highlighted the importance of **inspirational cases**, both in terms of success stories as well as with regards to community enablers like the collaboration with KEBE, which can act as catalysts for broader ecosystem engagement.

Overall, the Cyprus experience reflects an **early-stage yet actively developing engagement landscape**, that offers significant success stories of collaboration that reached international audiences, but effort should be invested in establishing more stable relationships that can later evolve into more structured collaboration.



4.1.2. Poland

In the Poland Hub, stakeholder engagement is closely linked to **concrete project activities**, particularly the Joint Pilot Research Projects (JPRPs) and Open Calls, which act as primary mechanisms for reaching and activating stakeholders. Engagement has been established across all target groups, including business actors such as XR startups, cultural heritage institutions (e.g. Museum of the First Piasts at Lednica, and “BIBUŁA” – The Secret Printing House of Józef and Maria Piłsudski, which is the Łódź branch of the Józef Piłsudski Museum in Sulejów), policymakers, research communities, and the public.

The effects of these interactions go beyond simple awareness raising and already include **active involvement in project processes**. Cultural heritage institutions, for example, have participated in JPRP-related activities, including signing Letters of Intent and contributing to additional research related surveys (83 answers from museums in Poland), indicating a higher level of commitment and engagement. At the same time, outreach activities such as conferences, presentations, and networking events have contributed to increasing visibility and interest in the HERIFORGE Hubs.

In the business and creative sectors, engagement has largely taken the form of **presentations, networking, and encouragement to participate in Open Calls**, reflecting a strategy aimed at gradually building a pipeline of potential collaborators. Similarly, research stakeholders have been engaged through scientific events and conferences, while public engagement has been supported through webinars focused on XR technologies in cultural heritage.

A key characteristic of the Poland Hub is the **strong linkage between engagement and concrete activities**, which facilitates a transition from awareness to participation. This suggests a more advanced stage of engagement in certain areas, particularly where stakeholders are already involved in project-related processes.

4.1.3. Türkiye

The Türkiye Hub demonstrates a **broad and proactive approach to stakeholder engagement**, particularly in reaching business and industry actors as well as cultural heritage institutions. A large number of stakeholders have already been contacted, including XR companies, SMEs, cultural institutions, archaeological site managers, media art initiatives, policymakers, and research organisations.

In contrast to other hubs, engagement in Türkiye is characterised by a strong emphasis on **two-way knowledge exchange**, where interactions are not limited to informing stakeholders about the project but also involve gathering insights on current practices, challenges, and opportunities within the XR and cultural heritage sectors. This reflects a more exploratory and ecosystem-oriented approach, aiming to better understand the local context while building relationships.

Concrete activities include public events, such as collaborations with media art initiatives, as well as training sessions (e.g. LiDAR scanning training for researchers) and participation in international conferences. Open Calls and project activities (notably within T4.2) have also played a significant role in reaching a large number of industry actors and encouraging participation.

Engagement with policymakers has focused on **information exchange and understanding regulatory environments**, while collaboration with research institutions has supported both knowledge sharing and



potential future partnerships. Public engagement has been achieved through events targeting audiences interested in digital media and cultural heritage.

Overall, the Türkiye Hub reflects a **high level of engagement intensity and ecosystem reach**, with a strong foundation for future collaboration. However, in some areas, engagement is still at the stage of mutual exploration, and further work will be required to translate these interactions into sustained activities and measurable outcomes.

4.2. Project's Contribution to Outcomes and Wider Impact

The second workshop exercise focused on assessing how current HERIFORGE activities contribute to the **expected outcomes and wider impacts defined in the GA**, using the framework of **Project Impact Indicators (PIs)** with a **5-year horizon after project completion**. The objective was to move beyond general assumptions and identify concrete, context-specific pathways through which impact may be realised, based on inputs from the three hubs: Cyprus, Poland, and Türkiye.

This exercise confirms that, although the project is still in its implementation phase, there are already **clear indications of how activities are aligning with the five Project Impacts (PI1–PI5)**. At the same time, it highlights that many of the indicators remain **forward-looking**, requiring further operationalisation through the HERIFORGE Hubs in the exploitation phase.

4.2.1. PI1 – Wider reuse of Cultural Heritage resources and application of digital technologies

Indicator 1: # of developed or improved prototypes and services (target: 30)

- **Cyprus** identified specific outputs such as *30 immersive experiences and digitised assets for tourism*, as well as *educational XR tools*, with at least one company already expressing interest in further development of immersive learning solutions. The creation of *digital twins of cultural assets* was also highlighted as a key direction.
- **Poland** framed this indicator through the development of *new R&I project proposals*, XR prototypes created in collaboration with cultural heritage institutions, and supporting outputs such as *digital booklets, shared vocabularies (e.g. definitions of immersion, gamification, storytelling), and online courses*.
- **Türkiye** provided a structured breakdown of expected outputs: *Open Call outcomes as services (4), Open Call outcomes as exhibitable projects (4), JPRP exhibitable outputs (approx. 10), and digitised content published for reuse in the Data Orchestration Platform (approx. 10)*, directly contributing to the overall target.

Indicator 2: # of workshops and trainings (target: 10)

- **Cyprus** proposed *train-the-trainer programmes*, professional upskilling activities, narrative-focused trainings for tourism, and *hackathons for students and graduates*.
- **Poland** outlined a broad set of training activities, including *translation between museum and technology language, public domain and storytelling training, procurement processes for XR, and methods for evaluating XR project success (KPIs)*.



- **Türkiye** presented a detailed plan including *hybrid trainings, hackathons, and thematic sessions* on XR, XR+AI, storytelling, virtual production, IP management, metadata enrichment, and 4D digitisation of intangible cultural heritage.

Indicator 3: # of clients of the Data Orchestration Platform (target: 30)

- **Cyprus** identified potential users including companies, cultural institutions, galleries, and even sectors such as real estate and gaming, highlighting the platform as a validation and testing environment.
- **Poland** pointed to XR creators, SMEs, and cultural institutions, alongside the idea of building a shared contact base of organisations interested in XR implementation.
- **Türkiye** expanded the scope to include artists, SMEs, game developers, CH institutions, and research labs as potential DOP (Data Orchestration Platform) users.

4.2.2. PI2 – Enhanced cross-border research-based connectivity

Indicator 1: # of entities joining the Hubs beyond beneficiaries (target: 12)

- **Cyprus** emphasised *formal collaboration frameworks*, such as joint projects, memoranda of understanding, and pilot initiatives between cultural heritage actors, promoting collaboration and networking at international scale through EU infrastructures and networks such as DARIAH and ECCCH ECHOES.
- **Poland** suggested engagement with *umbrella organisations and international networks* (e.g. NEMO – The Network of European Museum Organisations, ICOM – International Council of Museums), as well as the possibility of connecting XR sector organisations.
- **Türkiye** provided a detailed perspective, including collaboration with *international XR and cultural organisations* (e.g. *Ars Electronica*³, *Stereopsia*⁴, *Immersive Tech Week*⁵), engagement with *XR Europe*⁶ and *Virtual Worlds Association*⁷, and organisation of events such as the *AMPS Heritages Conference*⁸, all aimed at expanding the ecosystem beyond project beneficiaries.

4.2.3. PI3 – Better-aligned strategies for digitally enabled reuse of CH

Indicator 1: # of policymakers engaged (target: 15)

- **Cyprus** focused on *informing policymakers* and gathering input through *questionnaires and communication activities*.
- **Poland** proposed *policy briefs with practical implementation recommendations*, aiming at stronger alignment with national and EU strategies.
- **Türkiye** outlined a more interactive approach, including *workshops and sessions involving policymakers, CH institutions, and XR actors*, often organised in collaboration with development

³ <https://ars.electronica.art/news/en/>

⁴ <https://stereopsia.com/>

⁵ <https://www.immersivetechweek.co/>

⁶ <https://xr4europe.eu/>

⁷ <https://www.virtualworldsassociation.eu/>

⁸ <https://amps-research.com/heritages-architecture-urbanism/>



agencies and ministries, with the aim of positioning HERIFORGE as a reference framework for decision-makers.

4.2.4. PI4 – Enhanced links between academia and business

Indicator 1: # of researchers trained (target: 600)

- Cyprus highlighted *training in entrepreneurial thinking and IP awareness*, supporting commercialisation of research outputs.
- Poland proposed *practice-based toolboxes, open case studies, and methodologies* supporting collaboration between researchers and industry.
- Türkiye suggested a broader ecosystem approach, including *local trainings for researchers and students*, as well as potential *dual degree programmes and exchange agreements* between academic institutions.

4.2.5. PI5 – Responsible implementations of Virtual Worlds

Indicator 1: # of publications (target: 9)

- **Cyprus** linked this to knowledge generation and documentation of results for guidelines and good practices publication.
- **Poland** highlighted dissemination and shared knowledge resources.
- **Türkiye** identified specific research areas contributing to publications, including *metadata management, digital humanities, and human-computer interaction*.

Indicator 2: # of services/products guided to IP (target: 3)

- **Cyprus** proposed *licensing agreements and controlled access to digital assets*.
- **Poland** acknowledged the importance of this area but provided limited detail.
- **Türkiye** outlined a wide range of potential outputs, including *XR tools, AI-based applications, digital twins, datasets, modular exhibition systems, and AR cloud content*, with potential for future IP development and commercialisation.

4.3. Contribution of Deliverables to Impact and Stakeholder Engagement

The workshop reflections highlight that, while the project has produced a comprehensive and well-structured set of deliverables, their **impact potential is not automatic**. A key challenge lies in ensuring that deliverables are not treated merely as formal reporting outputs, but are actively used as **operational tools for dissemination, engagement, and exploitation**.

At present, there is a risk that some deliverables – particularly those of a strategic or analytical nature (e.g. D2.1, D2.2) – remain underutilised beyond the consortium, unless they are translated into accessible formats and actively communicated to relevant stakeholders. Similarly, technical deliverables (e.g. D3.2 – Data Orchestration Platform) require continuous promotion and user-oriented positioning to ensure uptake by CHIs, industry and research.

The analysis also suggests that **engagement-oriented deliverables**, i.e., D4.1 – Hub's Profiles and Inclusivity Strategies, currently play the most visible role in activating stakeholders. However, their long-



term impact will depend on how effectively they are connected with organisational models, strategic and technological outputs, forming a coherent and usable system for stakeholders.

From an impact perspective, this implies a necessary shift: deliverables should be systematically treated as **living instruments of impact**, rather than static documents. This includes:

- using deliverables as **communication assets** (e.g. policy briefs, guidelines, toolkits) through HERIFORGE channels,
- integrating them into **stakeholder engagement processes** (networking activities, workshops, trainings, consultations),
- and aligning them with the **operational needs of the HERIFORGE Hubs**.

In this sense WP5 (T5.1 and T5.3) plays a critical role in this transition by ensuring that deliverables are actively linked to impact pathways, stakeholder needs, and exploitation strategies. In this sense, the effectiveness of the HERIFORGE impact framework will depend not only on what is delivered, but on how deliverables are used, shared, and embedded within the ecosystem over time.

Table 1: Contribution of Deliverables to Impact and Stakeholder Engagement (including only public Deliverables).

Deliverable	Primary Target Groups	Contribution to Impact	Role in Dissemination & Engagement
D2.1 – Analysis of policies	Policymakers, CH sector	Identifies gaps and aligns HERIFORGE with EU/national strategies (PI3)	Tool for policy dialogue and advocacy
D2.2 – Ecosystems strategy	All groups	Defines collaboration logic for XR–CH ecosystems (PI2, PI3)	Communicates value of ecosystem approach to stakeholders
D3.1 – JPRPs design	Research, Industry, CH sector	Structures collaborative R&I activities (PI1, PI4)	Engages stakeholders in co-creation and experimentation
D3.2 – Data Orchestration Platform	Industry, Research, CH sector	Enables reuse of CH data and development of XR services (PI1, PI5)	Key demonstrator for stakeholders; attracts users (DOP clients)



D3.3 – Lessons learnt	All groups	Captures knowledge and best practices (PI1–PI5)	Dissemination of replicable models and insights
D4.1 – Hubs’ Profiles & Inclusivity	All groups	Maps stakeholders and ensures inclusive engagement (all PIs)	Foundation for stakeholder communication and targeting
D4.2 – Governance model (COGM)	All groups, especially Policy	Defines operational model of Hubs (PI2, PI3, PI4)	Builds trust and clarity for long-term collaboration
D4.4 – Guidelines for innovation ecosystems	Policy, Research, Industry	Supports replication and scaling of HERIFORGE model (PI2, PI3)	Disseminates best practices beyond the consortium
D5.1 – Dissemination & exploitation report	All groups	Ensures visibility and uptake of results (all PIs)	Core communication and outreach tool
D5.2 – Impact & Sustainability Strategy	All groups	Guides long-term impact and exploitation (all PIs)	Strategic narrative for stakeholders and future adopters

5. Conclusions and actionable recommendations

Deliverable D5.2 constitutes the first formal articulation of the HERIFORGE Impact Assessment and Sustainability Strategy, developed under Task 5.3 and fully aligned with the project’s impact framework and expected outcomes. It establishes a structured and evidence-informed baseline for assessing how ongoing activities contribute to the Project Impacts (PI1–PI5), while simultaneously initiating the development of a long-term strategy for sustainability and exploitation. It is important to underline that D5.2 is not a final or static output, but part of a continuous, iterative process of impact monitoring, validation, and strategic refinement. This process will culminate in D5.4 – *Updated Impact Assessment and Sustainability Strategy*, which will present updated and validated conclusions based on the full set of project activities, and will form the basis for the final exploitation strategy.

5.1. Positioning of D5.2 within the HERIFORGE Framework



This Deliverable reflects the project at a **mid-implementation stage**, where early outputs and engagement activities are already generating **initial signals of impact**, but where most outcomes and wider impacts remain in development and require further consolidation.

The analysis confirms that project is well aligned with its expected impact pathways, particularly in terms of:

- activation of stakeholder ecosystems across the three hubs,
- initial development of XR-driven solutions and services,
- and early engagement with policymakers, research organisations, and industry actors.

At the same time, the findings highlight that quantitative indicators are, at this stage, only partially populated, and that the majority of impact will materialise during the operational phase of the HERIFORGE Hubs and in the post-project period. This reinforces the need for a forward-looking and adaptive impact strategy, capable of integrating emerging results and adjusting to ecosystem dynamics.

5.2. Strategic Integration Across Work Packages

A key conclusion of D5.2 is that achieving impact in the project depends on **strong integration across Work Packages**, rather than isolated activities. In particular, two deliverables emerge as core strategic pillars:

1. **D2.2 – Ecosystems Strategy**, defining the framework for cross-sector collaboration and innovation,
2. **D4.2 – Common Organisational and Governance Models (COGM)**, establishing the operational structure of the HERIFORGE Hubs.

The interaction between these deliverables will be operationalised through **dedicated cross-WP coordination mechanisms**, including regular joint meetings, alignment workshops, and **consortium-level Annual Events (e.g. the Annual Event in May 2026 in Nicosia, Cyprus, followed by a subsequent edition in 2027 bringing together all partners)**. These mechanisms will ensure coherence between ecosystem design, governance models, and impact generation. This structured collaboration will enable the consortium to continuously connect outputs across tasks and Work Packages, supporting their effective translation into **sustainable and scalable outcomes**.

5.3. Operationalization of Sustainability and Exploitation

Updating the impact and sustainability strategy, as part of the transition from D5.2 to D5.4, will focus on the **operationalizing of sustainability mechanisms**, which are currently identified but not yet fully developed. Key areas of work include:

- further research and analysis on the project's impact, also with reference to the SDGs. The assessment will rely on both qualitative and quantitative metrics, leading to an exploitation strategy, including mapping impact areas and exploitable assets and developing exploitation business models,
- Intellectual Property and rights sharing, including agreements between stakeholders and an appropriate legal framework for sharing IP and copyrighted CH assets;
- a concise exploitation activity strategy for all the key stakeholders;
- the publication and communication of relevant reports and the exploitation strategy across



stakeholders.

5.4. Deliverables as Instruments of Impact

An important strategic shift identified in this Deliverable concerns the role of project outputs. Deliverables must be understood not only as reporting obligations but as **active instruments for impact generation, dissemination, and stakeholder engagement**.

This implies a need to: translate deliverables into accessible, stakeholder-oriented formats (e.g. policy briefs, guidelines, toolkits, social media publications and campaigns), embed them within engagement activities, including workshops, trainings, and co-creation processes, and align them with the operational needs of the HERIFORGE Hubs and their ecosystems.

In this context, **WP5 (T5.1 – Dissemination, communication and outreach, T5.2 – Engagement activities for hubs with external communities, and T5.3 – Sustainability, impact and exploitation)** plays a central role in ensuring that dissemination, communication, and impact assessment are fully integrated, enabling effective uptake and long-term use of project results.

5.5. Iterative Approach and Consortium-Wide Engagement

The development of the Impact and Sustainability Strategy will follow a continuous and participatory approach, involving all partners and ensuring alignment across tasks and work packages. The process initiated through the T5.3 workshop will be extended through:

- **consortium-wide workshops (May 2026 and May 2027),**
- **systematic monitoring of KPIs and preparing for PIs,**
- **and ongoing cross-WP collaboration,** particularly with WP2, WP4, and WP5.

5.6. Transition to Hub-Driven Impact

A central element of the project impact model is the transition from **project-driven activities to Hub-driven impact generation**. As the HERIFORGE Hubs enter their operational phase, they will become the primary structures responsible for sustaining and further developing project results, engaging stakeholders across sectors and regions, generating new services, collaborations, and innovation activities, and delivering measurable impact over the **5-year post-project horizon**.



PARTNERS



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