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**GLAMMONS**

**THE USE OF  
DIGITAL  
TECHNOLOGIES  
UNDER  
COMMONS &  
THEIR TRANS-  
FORMATIVE  
POWER**



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## EXECUTIVE SUMMARY

This working paper examines the transformative power of digital technologies within the GLAM (Galleries, Libraries, Archives, and Museums) sector, highlighting how commons-oriented digital practices have redefined audience engagement and the generation and management of cultural data. Over the past decades, digital tools and platforms have enabled audiences to become active participants in the creation, meaning-making and sharing of cultural heritage. This transformation is shaped by evolving policies in the EU addressing issues of open access, digital rights, and institutional adaptation. Since the 2010s, Europe has progressively embraced accessibility and openness in the digital sphere, standardizing regulations on the reuse of public and cultural data and promoting the elimination of digital barriers.

Parallel to this, the emergence and growth of digital commons has fundamentally altered traditional notions of production, ownership, and control over digital content, data and software. The paper explores how digital commons have influenced institutional cultures within GLAMs, reshaping shared knowledge systems, engagement and co-creation practices. These developments challenge traditional power dynamics between experts and audiences/users. They promise to transform how institutions produce, manage, and share cultural data while at the same time, necessitate a balance between technological advancements, ethical considerations, and strategic organisational responses. The participatory turn in digital heritage has not only changed the meaning and value of digital content, but also altered its circulation and use within and beyond institutional boundaries.

To illustrate the opportunities and challenges posed by open and participatory models in the GLAM sector, and to showcase the complexities of integrating digital commons into cultural work, the paper reviews three recent cases of pioneering digital commoning practices:

- Acting for Monuments (MONUMENTA NGO): A citizen-led programme for documenting and protecting Athens' architectural heritage;
- Archipelago Network: A digital archiving and curating project preserving the audio-visual heritage of island communities in the Cyclades;
- Mapping Ancient Athens (DIPYLON SOCIETY): An interactive research platform compiling archaeological excavation data and underground findings.

Through these cases, we highlight how the adoption of digital commons practices in the GLAM sector can transform cultural heritage management into a dynamic sphere where 'openness'

is continuously redefined and negotiated through participatory, inclusionary and socially-informed processes. To nurture this shift further there is a need for inclusive, flexible, and forward-thinking policies to ensure sustainable and equitable engagement with the work of GLAMs.

Overall, our review of the relevant literature and mapping of current practices underscore the transformative potential of digital commons and networking technologies in fostering a commons-oriented practice in GLAM. These technologies enhance communication, facilitate value creation and distribution, and support self-organization. For GLAMs to navigate this evolving landscape effectively, they require a robust framework that integrates digital commons practices, addresses resource management and community governance, and aligns with the broader principles of commoning as outlined in commons theory.



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# 1. INTRODUCTION

## 1.1. Purpose and Scope

The present deliverable derives from the research undertaken under Work Package 4 (WP4) of the GLAMMONS project. This WP explores resilient and sustainable management processes in commons and commons-oriented organizational arrangements and alternative spaces. Drawing on the vast and evolving digital landscape of the GLAMs, this paper examines the transformative power of digital technologies and the shifts that have emerged over the last decades. Commons-oriented digital practices have transformed the audiences of galleries, libraries, archives, and museums from mere viewers and passive users to active participants in the creation, sharing and management of their cultural work. This transformation is shaped by a policy framework that navigates issues of open access, digital rights, and institutional adaptation. As the digital realm continues to evolve, new challenges and opportunities arise, requiring ongoing negotiation between technological advancements, ethical considerations, and institutional strategies. The ever-changing nature of this landscape underscores the need for flexible, inclusive, and forward-thinking policies that ensure sustainable and equitable engagement with cultural heritage in the digital age.

To better understand this shifting digital technology landscape, in this paper we expand our previous work done within the framework of the GLAMMONS programme. Our working paper "Copyright and open access for GLAMs in the age of Covid-19" (Deliverable 1.7, Lekakis & Dragouni, 2024) focused on exploring the production and sharing of digital resources in the online realm by GLAM institutions. By exploring issues of access and ownership of data produced through digitization, and the challenges deepened by the pandemic, it became obvious that the concept of 'openness' in the GLAM sector has become particularly complex and worthy of further interrogation. As we highlighted, the term 'openness' requires constant re-evaluation. This ongoing discussion within the GLAM sector, particularly over the past two decades, underscores how digital technologies themselves have posed a transformative shift. Digital tools and platforms have not only redefined the ways cultural institutions engage with their audiences but also fundamentally altered the parameters of access, ownership, and control over digital content. What was once a relatively static system of access to cultural heritage has evolved into a dynamic, often contested, field of practice and policy, with 'openness' at its core continually redefined by technological advancements.

However, digital technologies also present significant challenges, as they can exacerbate issues around access, control, and ownership of cultural data. While some digital tools enable

communities to share and engage with cultural resources freely, others risk reinforcing existing inequalities or creating new barriers to access, particularly for marginalized or underrepresented groups. This paper, therefore, aims to shed more light on how technology, in its current form, both empowers and limits these communities, with a particular focus on how it can both nurture and constrain the commons-oriented digital practices that have emerged in recent years.

Furthermore, we move forward to examine how policies in the EU have shaped the GLAM sector, exploring the impact on digital heritage, access, and participation. Since 2011, Europe has progressively embraced accessibility and openness in the digital sphere, shaping key policies that influence the cultural sector. The EU's Digital Single Market Directive (2015) aimed to remove digital barriers and expand cross-border access to content, recognizing open data as a vital tool for innovation. This vision was reinforced by the Open Data Directive (2019/1024), which standardized regulations on the reuse of public and cultural data, fostering digital transformation and maximizing social and economic benefits. From then to today, with the rapid immersion of AI into digital ecosystems, the discussion around accessibility, ownership, and reuse of data produced through digitization of cultural assets has become ever more complex.

This working paper also explores how emerging digital commons have significantly altered the institutional culture of GLAMs, how institutional frameworks shape and are shaped by shared knowledge systems, values, and classification (see for an early discussion on the ways "institutions think" Douglas, 1986). In the context of GLAMs, digital commons have challenged traditional notions of authority, ownership, and access, transforming the ways institutions produce, manage, and share cultural data. This shift along with the participatory turn, have redefined the meaning and value of digital content, as well as the power relations that formulate its circulations and use.

Additionally to the above, in this paper we review three cases of digital commoning practices in the sector of cultural heritage in Greece: (a) Acting for Monuments (MONUMENTA), a citizen-driven initiative for documenting and protecting architectural heritage in Athens, (b) Archipelago Network, a digital archiving and curating project for managing and preserving the audiovisual heritage of island communities in the Cyclades, and (c) Mapping Ancient Athens (DIPYLON SOCIETY), an interactive research-driven platform that compiles data on archaeological excavations and underground archaeological findings. By reviewing these cases, we aim to highlight the challenges that arise by the increased use of open and participatory models in the GLAMs.

## **1.2. Contribution to other Deliverables**

The research undertaken during WP2 and WP3 focused on identifying practices of managing resources and finances under commons and commons-oriented arrangements. Following these, in WP4, the GLAMMONS' researchers moved further to explore these empirically and experimentally in order to identify their workings and impact on communities and their values. This was pursued by designing and hosting a series of experimental workshops (Deliverable 4.1 – 'Working paper on the processes and results of the three experiments'), as well as, holding community meetings and conducting interviews to collect data on commoners' values and motivations (Deliverable 4.2 – 'Working paper on the results of the Quality Evaluator application about the transformation of values and practices of the three experiments').

The present deliverable complements this work by exploring related dynamics and values that manifest in the digital realm; exploring tools and processes that can facilitate participation and increase resilience through commoning in the GLAM sector. This also extends our work in WP1 and particularly, our enquiry in sectoral digitization practices in Deliverable 1.5 ('Working paper: Pandemic-driven shifts of GLAMs finances and participatory practices: Digital policy and management trends in Europe'), the analysis of digital commons in Deliverable 1.6 ('Working paper: Conceptualizing GLAMs as commons') and our review of tools for sharing cultural materials and resources in Deliverable 1.7 ('Working paper - Copyright and open access for GLAMs in the age of COVID-19').

## **1.3. Structure of the Document**

The present paper has been organized to allow reader to explore the intersection between digital technologies, the commons, and the GLAM sector. After this introduction, the document continues with Section 2, which delves into the GLAM Digital Landscape, exploring the transformative power of commons-oriented digital practices in the sector, discussing open data, and identifying key challenges associated with digital transformation. The following section, EU Digital Policy and GLAMs (Section 3), examines recent developments in EU digital policy and the role of DG CONNECT in shaping the digital landscape for GLAM institutions. Section 4 highlights Commons-Oriented Transformation, showcasing inspirational practices from the GLAM sector, including participatory projects like the "Archipelago Network" and "Mapping Ancient Athens," as well as grassroots actions for preserving historic buildings. This section demonstrates how digital commons have the potential to reshape the sector. Section

5 moves towards untapping the transformative potential through digital commons, focusing on future opportunities, governance solutions, data management, and ethical considerations. It further explores how peer production and governance within digital commons can influence the organizational and cultural aspects of GLAMs. The paper concludes by emphasizing the need for alignment of digital commons with the EU priorities, offering insights into the future of digital commons in the GLAM sector.

## **2. GLAM DIGITAL LANDSCAPE**

### **2.1 The transformative power of a commons-oriented digital practice in GLAMs**

More than a decade ago, Merete Sanderhoff emphasized the role of GLAMs in making cultural heritage widely accessible, promoting education, sparking creativity, and contributing to cultural diversity (Sanderhoff, 2014: 31-32). Digital tools and emerging technologies offer new possibilities for cultural institutions, not only for improving professional practices but also for creating fresh opportunities for interaction. However, they also introduce challenges, as GLAMs need to adapt to an evolving digital landscape to remain relevant, meet the expectations of users and funders, and continue their traditional role in preserving cultural heritage.

Organizations operating in the sector still face significant challenges in integrating digital tools into their work and securing sufficient resources and expertise for materializing digital transformation (Mowat et al., 2022). As we opine in this report, practices of digital commoning and technologies harnessed and applied to commons-oriented frameworks can accelerate such transformation in the organizational practice, participation, and resilience of GLAM institutions. As we analyze here, to fully realize their digital potential, European GLAMs can draw on tools and resources produced as digital commons to ensure meaningful engagement while aligning their digital strategy with sectoral goals—such as enhancing social relevance, enabling accessibility, and promoting cultural diversity.

Advancements in digital engagement now extend far beyond simple viewing or social media interactions, enabling new forms of participation, content creation, and feedback channels (Rahaman, 2018). These developments must be further explored and leveraged to expand GLAMs' reach to regular and new audiences. For example, the digital ecosystem presents a unique opportunity to make public domain works accessible to all (Pelissier, 2021). The increased availability and reuse of digital resources can drive creativity, innovation, and cultural democratization, while also enhancing the visibility of diverse heritage (Pelissier, 2021). In doing so, digital production, distribution, and management could serve as catalysts for a more inclusive and democratic cultural landscape (Radermecker, 2022).

### **2.2. Open data and access to GLAM resources**

As we suggested in GLAMMONS Deliverable 1.7 (Lekakis & Dragouni, 2023), there are still misconceptions across the GLAM sector regarding what truly constitutes open data and accessibility. Wallace (2020) highlights that the term ‘open access’ is frequently misused to describe online platforms allowing users to view and download collections while restricting reproduction, modification, or creative reinterpretation. According to the OpenGLAM working group, digital content, and data are considered ‘open’ only when they can be freely used, reused, and redistributed by anyone, with the only potential requirement being attribution to the author(s) and/or the obligation to make derivative works available under the same conditions as the original (OpenGLAM, n.d.). Similarly, the Open Society Institute (2002) understands open access in relation to literary and scientific publications as their free availability on the Web, allowing users to read, download, copy, distribute, or repurpose content without financial, legal, or technical barriers, provided proper attribution is given to the original creators.

Therefore, the concept of openness in the GLAM sector extends beyond simple access, encompassing reuse, reproduction, and redistribution, making it necessary to establish clear legal and ethical boundaries. From a legal standpoint, it is crucial to define the rights and restrictions imposed by copyright holders regarding the use, sharing, and adaptation of arts, culture and cultural heritage materials. Additionally, it is important to consider the broader ethical and participatory dimensions of ‘openness’ within GLAMs and in line to commoning ethos, ensuring that public access to related resources aligns with the sector’s commitment to inclusivity and shared ownership of cultural heritage as ‘common legacy of all humankind’ (UNESCO, 1972; see also ICOM’s definition of cultural institutions as ‘open to the public, accessible and inclusive’<sup>1</sup>).

Nonetheless, today still much of cultural heritage materials and their digital reproductions, such as images and electronic publications, remain subject to copyright restrictions that regulate their diffusion to society. Of course, copyright law needs to ensure that creators and artists receive recognition and where applicable, financial compensation for their work (Bandle et al., 2020)<sup>2</sup>. Typically though, copyrights grant to owners exclusive control over materials and artwork, including the right to restrict copying, digital distribution, and even public access.

Under European Union law, copyright protection for literary and artistic works extends throughout the author’s lifetime and for 70 years after their death, irrespective of the

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<sup>1</sup> <https://icom.museum/en/resources/standards-guidelines/museum-definition/>

<sup>2</sup> These also include ‘moral rights’, which grant creators the right to be recognized as the author of their work and to oppose any modifications they consider improper.

publication date (Directive 2006/116/EC, Article 1)<sup>3</sup>. Artists or rights' holders may transfer intellectual property rights to the cultural institution through a contractual agreement (Bandle et al., 2020). Otherwise, GLAM institutions that do not own the copyright to the works they use must obtain licenses from rights holders to create and distribute digital versions, which adds complexity to sharing with audiences (e.g., photographs or scanned images). Additionally, there are also cases of 'orphan works'—works that remain under copyright protection but whose rights holders are unknown—making it particularly challenging for cultural institutions to obtain permission for online publication.

At the same time, a plethora of works housed in GLAMs are no longer under copyright protection and have been released to the Public Domain. The latter comprises all cultural and intellectual works that are no longer protected by intellectual property rights (European Commission, 2020). This category includes works that predate modern copyright laws, works whose copyright has expired, and even recent works whose creators have voluntarily and generously placed in the Public Domain. Public Domain materials—including images, audio-visual content, and literary works—can be freely used, shared, and modified without requiring permission, enabling GLAMs to adopt an open sharing digital policy<sup>4</sup>. The Europeana Public Domain Charter (2010), though not yet fully implemented across the European sector, underscores that GLAMs have a dual responsibility: not only to preserve Public Domain works but also *to make them widely accessible to the public*.

Regarding sharing policies, GLAM institutions can be categorized into four distinct groups based on their approach to digital collections. The first group includes those organisations which have not made their collections available online due to technical, financial, legal, or other challenges in managing digital assets. The second category comprises institutions that offer limited access to online collections, with materials still subject to intellectual property rights (IPR) and copyright restrictions that significantly limit reuse (e.g., permitting use only for research purposes). The third group consists of GLAMs in a transitional phase, where some digital collections are available for reuse under licenses that impose certain restrictions (e.g., CC BY-NC) or selectively apply open access to specific resources. Lastly, the fourth category includes institutions that have fully embraced open access, making all their digital collections

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<sup>3</sup> As Sanderhoff (2014: 39) explains, while moral rights remain with the creator of the original artwork, photographic rights belong either to the institution that commissioned the digital reproduction or to the photographer who captured the image. In the latter case, cultural institutions must credit and compensate the photographer when using these images. Given that moral rights often remain in effect for decades after the creator's death—typically for 70 years—much of Europe's cultural and intellectual output from the 20th century is still subject to such protections (Wallace, 2020).

<sup>4</sup> Note that in some instances, perpetual moral rights may still apply, meaning that creators must still be acknowledged when their works are legally in the Public Domain (Europeana, 2010).

freely available under open licensing frameworks such as the Public Domain Mark, CC0, CC BY, or CC BY-SA. As highlighted in Deliverable 1.7 (Lekakis & Dragouni, 2023: 42), libraries demonstrate the highest level of Public Domain compliance (77%), followed by galleries (56%), museums (48%), and archives (36%), which show comparatively lower levels of adherence. Notably, more than half of European museums (50.2%) and archives (56.3%) that offer open access to collections and materials prefer to retain some control over their digitized assets. Instead of fully relinquishing rights, they opt for an 'open compliant' model that allows them to maintain some rights regarding distribution and reuse.

All the above suggest that in order to set the transformative power of commoning into motion, there is still much that could be done to promote openness and sharing of digital and digitised resources across the sector, by overcoming hesitation and technical barriers at least, to the abundance of public works where legal restrictions do not apply. Data sharing is amongst the primary challenges that currently discourage GLAMs' transformation along with other major sectoral and organisation challenges, as we explain in the next section.

## 2.3. Key challenges and implications of digital transformation

Our earlier research of sectoral digital trends and digitization progress has shed some light on those areas that can be currently acknowledged as major challenges and implications for GLAMs (see Lekakis & Dragouni, 2023; Deliverable 1.5), as follows:

- **Effective digital transformation requires a solid digital strategy, to be devised and implemented by digitally skilled professionals.** A sustainable digital strategy for GLAM organizations demands continuous investment in infrastructure, digitization of collections, and appropriate tools for knowledge dissemination, catering for small and medium-sized GLAMs with limited capacity and in-house resources. Policies need to support further training programmes, professional development, and the exchange of best practices across the sector. Collaboration and knowledge-sharing between institutions can particularly benefit smaller GLAMs in the early stages of digital adoption. At the same time, related research shall cater for developing hands-on tools and practical guides to navigate small and medium cultural organisations to devise their digital strategy and vision<sup>5</sup>.

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<sup>5</sup> For instance, in response to this challenge the GLAMMONS project has set out to design a step-by-step guide for GLAMs that wish to develop in-house their digital strategies (Deliverable 5.4: 'Blueprint: Digital Strategies of GLAMs under Commons', to be delivered by the end of WP5, month 36).

- **Open access to digital cultural heritage is vital for achieving high and sustained impact across audiences.** High administrative costs associated with charging fees for digital imagery, combined with principles of cultural openness and democratization, support the argument for unrestricted access to public-domain artworks and data. Moreover, GLAMs should encourage free download, sharing, and creative reuse of digital content to fully untap the transformative potential of commoning arrangements.
- **Digital participation and community engagement need to be harnessed further for reaching out and engaging with traditional, virtual and distant audiences.** Online exhibitions and digital interpretation alone are insufficient for true accessibility and inclusion. Digital media and platforms provide opportunities for GLAMs to connect with audiences in new ways, supporting what Parry (2019) refers to as 'actant' users.
- **Employing digital tools and monitoring for better understanding audiences.** While digitization is not a simple solution for democratizing GLAMs, it can play a crucial role within a broader strategic framework. The use of audience data, gathered through interactive multimedia, mobile applications, social media engagement, and virtual experiences, can inform targeted strategies for improving accessibility, representation, and diversity (Dimitrova & Chatzidamianos, 2022: 38). Data analysis can provide insights into audience behaviours, preferences, and demographic patterns, helping GLAMs to align their content and digital approaches to users' needs and capacities (Manovich, 2017).
- **Building communication and feedback channels with digital communities to facilitate a user-centred design for digital applications.** The Europeana Network Association (2021: 2) defines digital heritage communities as groups that voluntarily collaborate to share knowledge and best practices in a specific area of interest. GLAMs could involve these communities in their work and invite them to co-create their digital strategy (Tartari et al., 2022: 18). Although this process can be energy- and time-consuming, it can pay off in the long term as understanding user needs and actively involving communities in the development of digital tools can lead to more meaningful and continuous engagement.
- **EU policies must continue to support diverse digital initiatives in the sector.** European directives should encourage the sharing of digitized and digitally-

born cultural materials across institutions of varying scales. While smaller GLAMs require assistance in accessing resources, larger institutions should be incentivized to untap their collaborative potential at local, national, and international levels, fostering a culture of commoning and knowledge-sharing between professionals and interested communities contributing to the work of GLAMs.

By responding to these challenges, we hold that GLAMs can develop sustainable digital strategies that not only preserve cultural heritage but also promote greater inclusion, accessibility, and audience engagement in an increasingly digital world. Digital commons and commoning tools can assist in this process in ways that are analysed later on in the present report. However, first, it is purposeful to look more deeply into the recent developments in the EU digital policy framework, in the next section of this working paper.

## 3. EU DIGITAL POLICY AND GLAMs

### 3.1. Recent developments in the EU digital policy landscape

Europe's shift towards greater accessibility and openness in 2011 introduced key concepts that became widely adopted ever since. In 2015, the European Union's **Digital Single Market Directive**, one of the European Commission's ten political priorities, aimed to eliminate virtual barriers, enhance digital connectivity and facilitate cross-border access to online content. Open data was recognized as a crucial strategy for achieving these objectives. The **Open Data Directive (2019/1024)** was introduced to maximize the reuse of public data, including cultural data, in order to drive digital innovation in products and services, ultimately increasing social and economic benefits across the EU. This directive also sought to further standardize national regulations and practices concerning the reuse of public materials, data, and information (Markellou, 2013).

Additionally, **Directive (EU) 2019/790** on copyright and related rights in the digital single market clarified and consolidated various copyright provisions relevant to GLAM institutions operating in the digital sphere. It reinforced protections for the public domain while establishing a legal framework for digitizing and sharing out-of-commerce works, thus promoting broader access to European cultural heritage. The directive also introduced exceptions allowing institutions to create preservation copies and conduct text and data mining for scientific research. Furthermore, it mandated that data generated from public-sector-funded digitization projects adhere to **FAIR principles** (Findable, Accessible, Interoperable, Reusable) to ensure better data management and accessibility (Markellou, 2013).

More recently, the **2021 Recommendation (2021/1970)** has emphasized the need to modernize digitization processes by leveraging advanced digital technologies. This recommendation underscores the importance of accelerating the digital transformation of GLAM institutions, integrating emerging technologies and improving digital skills among sector professionals. A key emerging objective is the creation of a **common European cultural heritage data space**, with the development of the **European Collaborative Cloud for Cultural Heritage** being promoted as a new digital infrastructure. This initiative aims to connect GLAM institutions and professionals across the EU, supporting the European Commission's broader vision and strategic goals.

## 3.2. DG CONNECT Policy

The Directorate-General for Communications Networks, Content and Technology of the European Commission (thenceforth, DG CONNECT) has a crucial role in forming policies that drive Europe's digital transformation. Its mission includes the development and implementation of strategies to reinforce the digital economy, foster research and innovation, while ensuring that Europe retains its competitiveness in the global digital landscape ([commission.europa.eu](https://commission.europa.eu)). In the context of the GLAM sector, DG CONNECT makes a major contribution to promoting the digitisation and online accessibility of cultural heritage. By coordinating policy and providing funding, it supports Member States in making cultural materials more accessible to the public, thereby enriching the digital cultural landscape of Europe ([digital-strategy.ec.europa.eu](https://digital-strategy.ec.europa.eu)).

One of the notable initiatives led by DG CONNECT is the development of a common European data space for cultural heritage (European Commission, 2022). This initiative aims to support the digital transformation of Europe's cultural sector by fostering the creation and reuse of content across the culture and creative sectors, sciences, education and others domains, thus aiming to generate significant social and economic value. Building upon the existing Europeana Digital Service Infrastructure<sup>6</sup>, this new common data space seeks to increase the interoperability and accessibility of cultural heritage data ([hadea.ec.europa.eu](https://hadea.ec.europa.eu)). Furthermore, DG CONNECT has addressed the integration of advanced technologies, such as Artificial Intelligence (AI), within the cultural and creative sectors. However, acknowledges that GLAMs remain a sector that is predominantly “end-to-end analogue”, meaning that they are mostly experienced in physical ways (DG CONNECT 2022). Collaborating with the Directorate-General for Education, Youth, Sport and Culture (DG EAC), it has commissioned studies to analyze the opportunities and challenges that AI technologies present to GLAMs and other cultural and creative sectors. These efforts aim to provide insights and strategies that can navigate digital transformation effectively ([digital-strategy.ec.europa.eu](https://digital-strategy.ec.europa.eu)).

Overall, DG CONNECT's policies hold great potential for benefitting GLAMs by facilitating their digital transformation, promoting the digitisation and accessibility of cultural heritage resources, and encouraging the integration of innovative technologies in related work. These initiatives can support preservation and engagement with Europe's rich cultural heritage while also promoting greater cultural participation in the digital age.

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<sup>6</sup> <https://pro.europeana.eu/page/europeana-dsi>

## **4. COMMONS-ORIENTED TRANSFORMATION: INSPIRATIONAL PRACTICES FROM THE GLAM SECTOR**

### **4.1. The participatory turn and digital technologies in the GLAM sector**

Over the past two decades, participation has been a central concern for galleries, libraries, archives, and museums (GLAMs). Institutional GLAMs increasingly grapple with the challenge of becoming more inclusive, accessible, and representative of diverse perspectives. At the same time, grassroots and non-institutional entities have emerged as alternative cultural actors, challenging the traditional authority of GLAMs and advocating for social change through more decentred, decolonial, and anti-hegemonic. In this evolving landscape, the participatory turn has played a crucial role in reshaping both institutional and non-institutional cultural spaces. Digital technologies have catalysed radical transformations in the complex framework of access, traditionally underpinning the authority of institutional GLAMs. Open-access digital archives, interactive museum platforms, crowdsourced heritage initiatives, and virtual collections have expanded opportunities for public engagement, challenging conventional models of curation and knowledge production. However, embedding participation through digital technologies at the core of GLAMs' organizational thinking remains a contested and evolving process, as underscored by contemporary literature and policy debates, reviewed above in this paper.

On the other hand, non-institutional entities—ranging from community-led archives to activist art collectives—have been at the forefront of adopting digital tools, particularly social media and online platforms, to empower citizens, foster self-organization, and create new collectivities around cultural heritage and memory. These digital practices have democratized access to cultural content, enabled alternative storytelling, and facilitated collaborative knowledge production outside institutional constraints. The participatory turn in GLAMs is thus not merely about technology adoption but reflects a broader shift in power dynamics, authority, and cultural mediation. It underscores the potential of digital tools to decentralize expertise, challenge historical narratives, and create more interactive and co-produced cultural experiences. The interplay between institutional and non-institutional digital practices continues to redefine the boundaries of public participation and access in the GLAM sector, highlighting both opportunities and tensions in the quest for more inclusive and democratic cultural heritage engagement.

At the same time, digital collections and research data in the last decade have a growing impact on the management of museums, archives, and libraries. The increasing demand for trusted repositories and digital research infrastructures has led to the establishment of digital curation as “a recognizable interdisciplinary field of knowledge and professional specialization” (Dallas, 2016: 1).

Thinking towards a commons-oriented transformation of the GLAMs sector, we sum up here the latest changes triggered by digital technology:

- (a) The transition from passive consumption of museum's (and other GLAM's) authorised content to active co-creation. From being the mere audience of the GLAMs, people nowadays are expected to actively contribute to the creation, curation, and interpretation of the cultural content through crowdsourcing projects developed online, participatory archiving assisted by digital technology and citizen science digital sciences initiatives, to name but a few (Deodato, 2014; Fransen-Taylor & Narayan, 2018).
- (b) Digital platforms act as a means to decentralise the authority of GLAMs. They empower individuals and communities to critically engage with GLAMs, to document, share, and reinterpret cultural narratives independently of institutional gatekeepers. Social media, Wikipedia, and open-access repositories allow for bottom-up knowledge production (Chen et al 2020, Ogushi et al 2021).
- (c) The rise of open-access digital collections and Creative Commons licensing challenges models of cultural production, fostering more collaborative and publicly accessible knowledge-sharing ecosystems. This Commons-Based model shows the ways to a participatory approach to cultural heritage, where knowledge is collectively produced, maintained, and disseminated (Wallace, 2020). Yet, it remains a great challenge as shown above in this paper.
- (d) Managing the economic and ethical challenges, that come with the commoning culture within the GLAMs is one of the major issues of the sector. While digital participation expands access, it also raises questions about labor, authorship, and the sustainability of cultural production. Institutions must navigate issues of digital equity, data ethics, and the commodification of user-generated content (see for example Hesmondhalgh, 2010).

Considering all these challenges and critical discussions surrounding the adoption of digital technologies in the GLAM sector, we proceed with reviewing a series of selected case studies that illustrate both the impact and the challenges of implementing digital technology and new

media in sharing archival material, collections of objects, artworks, local practices, and knowledge and so on.

#### **4.1.1. 'Archipelago Network': Managing the audio-visual heritage of island communities in Cyclades, Greece**

Archipelago Network, established as a not-for-profit organization in 2019, is dedicated research, document, and preserve the endangered cultural heritage, audio-visual history, and material knowledge of the Cyclades islands through community-driven and open-access practices to address urgent social, cultural and ecological challenges” (Archipelago Network Mission Statement found here: <https://alf.website/en/?members=archipelago-network>). Although the Archipelago Network extends beyond the digital realm into the physical world, this vignette review focuses specifically on its digitization efforts and the digital curation aspects of its work to highlight both the good practices employed and the theoretical concerns that are brought up.

With a strong visual identity, a powerful online presence, and an effective communication strategy, Archipelago Network gathers audio-visual material (privately owned and state-owned) but also produces new audio-visual documentation of cultural heritage assets of the island communities. This material is then carefully assembled and disseminated through curated digital practices. The Archipelago Network through its online presentation operates as a dynamic contact zone, much in the way James Clifford conceptualized it as an intersection where different cultures, knowledge systems, and actors meet, negotiate, and reshape their understandings of heritage (1997). It creates a space where local voices seem to be central to the narrative, fostering an ongoing dialogue that enriches our understanding of cultural identity in their rapidly changing islandscape. Yet, who makes the archiving, managing, and curating decisions? Who owns the “audio-visual heritage” of the island communities? Although initiatives such as the Archipelago Network, reconfigure traditional models of authority in heritage curation, they nonetheless retain a certain form of authority. It is indeed, not the authoritative structure typically associated with top-down models.

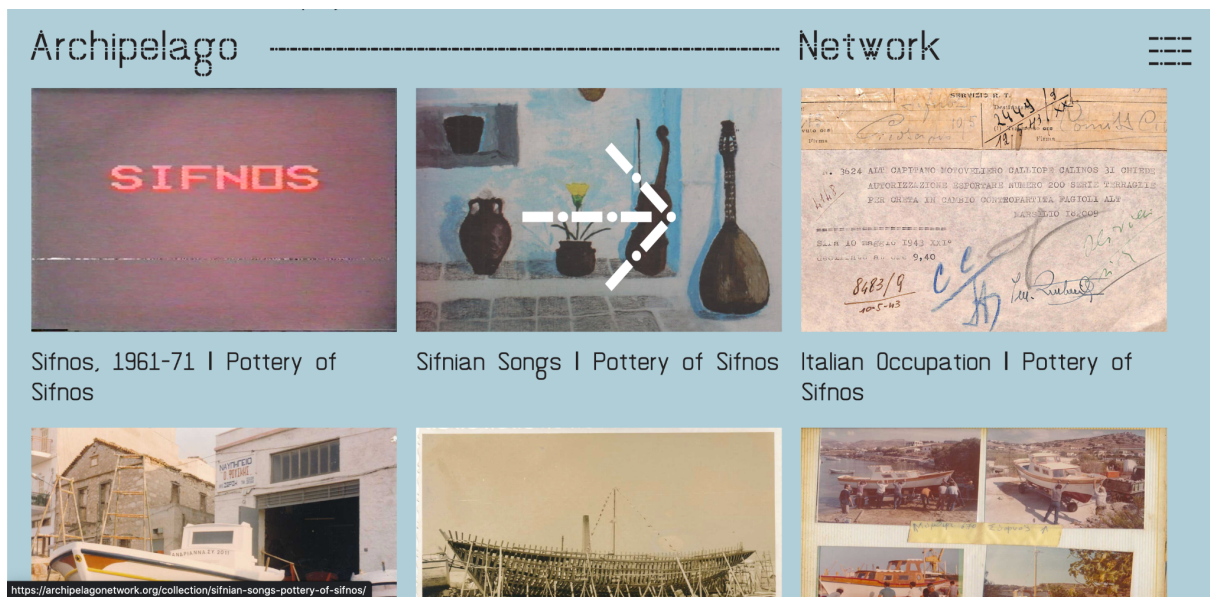


Figure 1 - Screenshot of the archival collections from the website of Archipelago Network.

As a modern digital archiving and curating practice, Archipelago Network offers a new perspective on local knowledge centred around themes that are of interest to its founder and curator—“Jacob Moe, a New York City-born documentarian and translator who shares his time between Athens and Syros” (Van Versendaal, 2022). These digital curation practices, even when positioned as research, often reflect the curator’s intentions, aesthetic choices, and personal vision. While the participatory nature of such initiatives allows for diverse voices to contribute to the interpretation and contextualization of the project, the curator’s authority can still be seen in the decisions about the content, form, and representation of the audiovisual material within the digital space. The curator’s authority over the digital curated project in this context remains intertwined with the nature of the digital archive, which, despite its participatory and research-driven aspects, is still often shaped by the curator’s original creative agency and vision. As in many other cases, digital curating cannot be distinguished from digital preservation (see for example Dallas, 2016). This ambiguity raises the issue of the role of digital archiving and curating projects, such as the Archipelago Network, in reshaping curatorial authority in preserving what is there to be preserved.

#### 4.1.2. ‘Mapping Ancient Athens’: An interactive and research-driven platform about Athens’ ancient heritage, Greece

“Mapping Ancient Athens” (<https://mappingancientathens.org/>) is an initiative of the Dipylon Society for the Study of Ancient Topography, which is a non-profit organization dedicated to the study of ancient topography and the cultural environment through interdisciplinary research in archaeology, history, informatics, and cartography, as stated in their website (Dipylon, 2024). Dipylon Society focuses on gathering, structuring, and disseminating published archaeological data, archival records, and cartographic materials to enhance cultural heritage visibility through digital technologies. Between 2012 and 2018, the Dipylon Society aimed to create an innovative digital platform that would unify and present the Athens’ dispersed archaeological remains in a comprehensive and accessible manner.

Containing detailed information on sites excavated during the last 160 years, “Mapping Ancient Athens” provides an open-access database where scattered archaeological material and heritage documentation is being organized in relevant fields of information, into two primary categories: typological (use of space) and chronological (historical periods). The impressive amount of information gathered by the Dipylon team is presented on an interactive map, where ancient Athens is being represented through the documentation material of rescue excavations. In this way Mapping Ancient Athens makes archaeological knowledge produced due to rescue archaeological excavations, accessible to digital users of the interactive map.

Although there is no public participation in the design and implementation of the interactive map and its database, we need to acknowledge the efforts for institutional participation. The demand for participation at an institutional level within Mapping Ancient Athens highlights a significant challenge, especially in the context of Greece’s archaeological framework. The Greek Archaeological Service has historically operated with a top-down, centralized approach, where decisions and access to archaeological data were typically controlled by a select group of professionals within established institutional structures. This hierarchical system has not always been open to public engagement or participatory models, making the transition to a more inclusive, open-access platform like Mapping Ancient Athens a difficult endeavor. The shift from a controlled, expert-driven system to a participatory model requires not only technical innovations but also a cultural shift within the archaeological community itself. This transition must address concerns related to the protection of intellectual property, the accuracy and reliability of data, and the challenge of managing large volumes of contributions from non-expert users, all while maintaining the integrity of archaeological research.

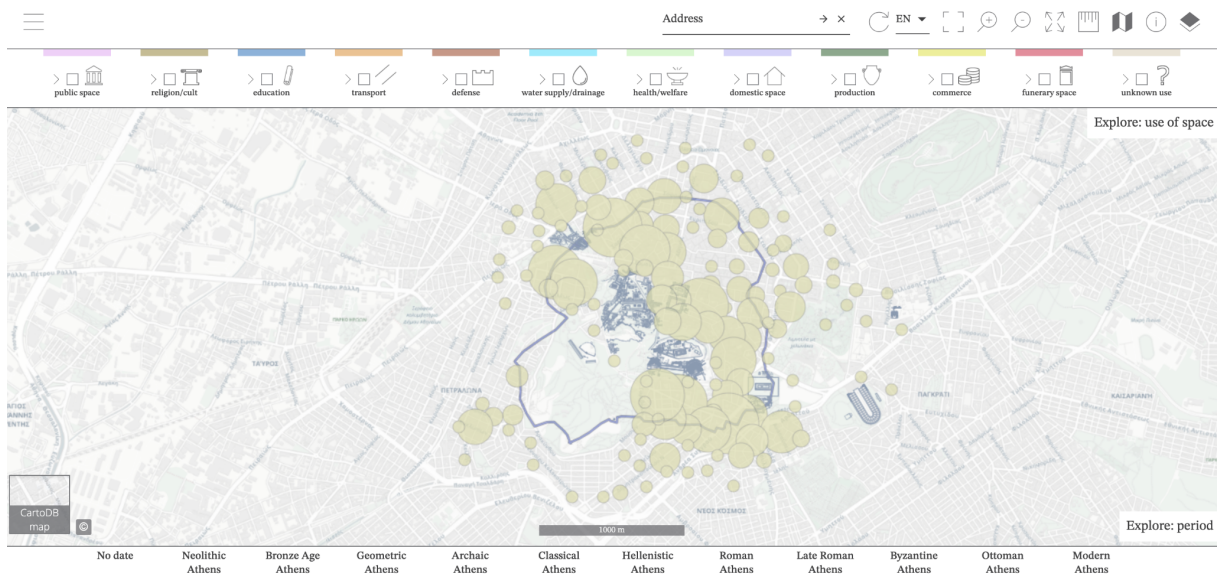


Figure 2 - Screenshot of the interactive map from the Mapping Ancient Athens website, showcasing archaeological sites and excavation data across the city.

However, while the institutional-level participation required by Mapping Ancient Athens may seem like a demanding task, its success could serve as a model for broader shifts in how archaeological data is managed, shared, and interpreted. This project challenges us to rethink institutional practices and create space for more collaborative, transparent, and inclusive approaches to heritage curation and public engagement.

#### 4.1.3. ‘Acting for monuments’: Grassroots action for saving historic buildings in Athens

"Acting for Monuments"<sup>7</sup> is an interactive digital management program concerning the architectural heritage of Athens. It was developed by Monumenta<sup>8</sup>, a non-profit organization that focuses on the protection, documentation, and promotion of historical monuments and architectural heritage, aiming at the systematic organization of the recorded information and its effective communication to the general public and cultural experts. In this case, a four-part, modular scheme was implemented for the managing documentation information (a blog for

<sup>7</sup> It is thanks to the involvement of one of the authors of Working Paper 4.4 that we gained valuable insights into the processes of designing and implementing the Acting for Monuments project. Namely, Stelios Lekakis was one of the key members of the team of Monumenta who worked for the project.

<sup>8</sup> <https://www.monumenta.org/main>

activity updates, a database, a website, and a mobile application). This structure allows for the potential reuse of the system in documenting architectural heritage in other cities.

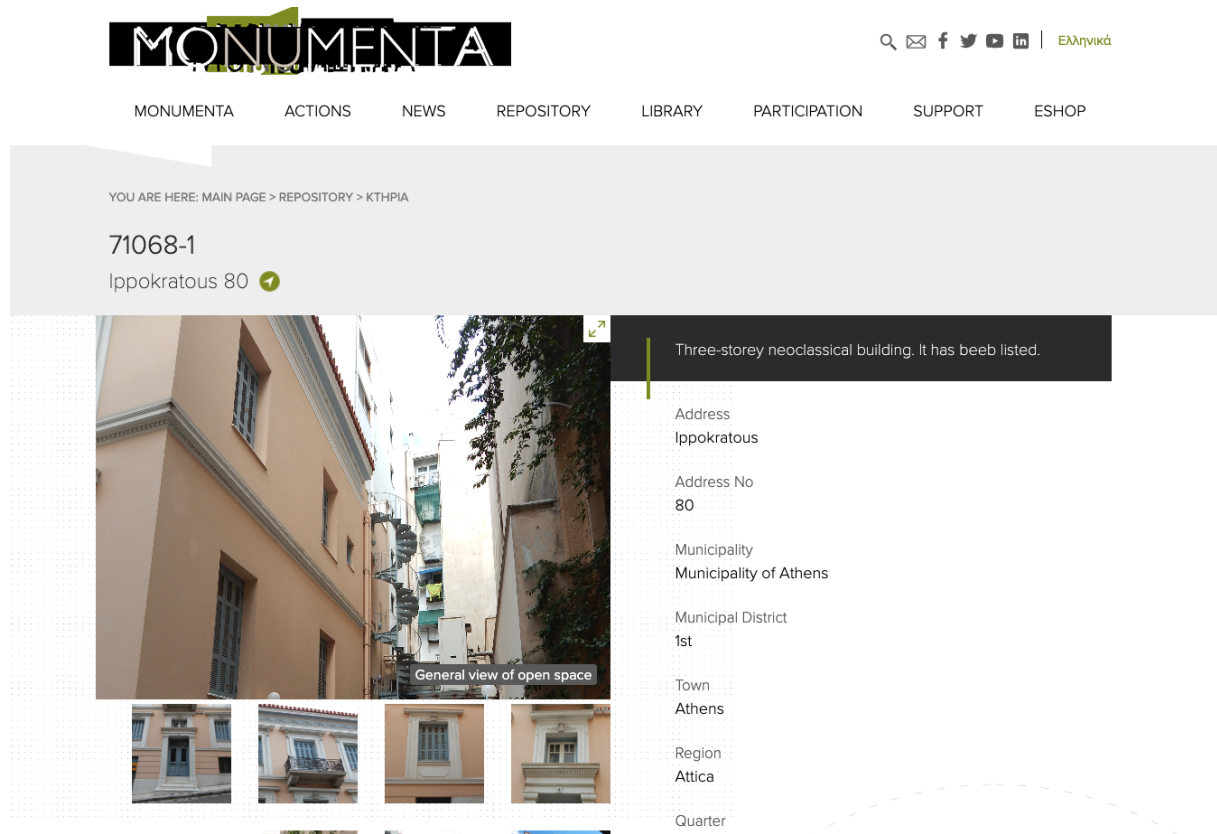


Figure 3. Screenshot from the Monumenta online database.

The focus of the project was placed on the buildings of Athens, with the rationale of creating a "digital building file" that could include any information related to the building collected in the field or documented bibliographically, including visual and audio material. The fields were designed to reflect the historicity of research in the documentation of architectural heritage in Greece, within the framework of relevant standards for organizing cultural information databases. The designed database allows for the documentation of identity (location, characteristics, use), the historicity of the building over time (permits, additions, declarations), its preservation status, and the surrounding environment. Finally, it allows the documenter-researcher to evaluate the building in relation to the entirety of the recorded material.

A bilingual website serves the role of presenting part of the collected information per building, but additionally offers the opportunity for comparative and synthetic access based on

analytical criteria (geographical, constructional, etc.) in an easy and interactive manner. Simultaneously, the website serves as a hub of information and updates on Athens' architecture, hosting informative texts, archival material, educational programs, and participatory actions, such as providing information about a building and guides for documenting architectural heritage. Furthermore, it offers the possibility of direct digital documentation of buildings or enrichment of their data, and along with the blog, serves as a point of information on the program's activities during and after the documentation period. In another level of interaction, Acting for Monuments proposes a way for the audience to communicate content with the application: "Cartes postales for friends".

Among the challenges of the Athens building documentation program was the organization and presentation of the recorded information regarding the buildings and the human stories they house, as well as the creation of necessary mechanisms to contribute to the preservation and enrichment of the database in the future, with an emphasis on participatory processes for contributing material and maintaining it. Contrary to other documentation projects, the material from Acting for Monument is organized spatially and thematically and freely accessible in digital form to any citizen. These efforts are supported by the tools of online collaboration and modern communication offered by Web 2.0, which enable new forms of interaction and knowledge sharing. In particular, peer-to-peer (P2P) production has become a driving force, allowing internet users to voluntarily contribute information without hierarchical structures or profit expectations. This approach aligns with the participatory aims and goals of the Acting for Monuments project to contribute to a dynamic, social economy that is built upon collective contribution of knowledge and resources, and is characterised strong social or educational dimensions (Bauwens et al., 2019).

## 5. UNTAPPING TRANSFORMATIVE POTENTIAL THROUGH DIGITAL COMMONS

In recent years, advancements in information and communication technologies (henceforth, ICT) have catalysed the emergence and consolidation of 'digital commons'; a new paradigm of commons produced and maintained in the digital sphere. Digital commons encompass open knowledge, software and design resources, which are collectively developed, shared and used by communities online (Dafermos, 2020). Digital commons leverage peer-to-peer (henceforth, P2P) communal practices and an open-sharing culture to sustain resources (Bauwens et al., 2019), demonstrating high capacity for self-organization and collective value creation (Kostakis et al., 2018). As such, they are of particular interest to our research in GLAMs, and to questions regarding participation and financial resilience, as they contribute to the thriving of cooperative economic models that generate value through openness, collaboration, and global networking (Tapscott & Anthony, 2008). By fostering openness, collaboration, and global networking, digital commons contribute to cooperative economic models that prioritise accessibility and engagement.

The integration of digital commons principles into GLAMs aligns with the broader shift towards participatory culture, empowering institutions to co-create knowledge with communities while ensuring long-term access and preservation of cultural heritage. Furthermore, digital commons serve as a counterforce to restrictive proprietary models, enabling greater democratization of cultural production and dissemination. Looking ahead, the intersection of digital commons and GLAMs offers promising future avenues for research and practice.

The evolving role of digital commons in cultural heritage institutions necessitates an alignment with DIGIT's strategic priorities, ensuring that digital transformation efforts remain inclusive and sustainable. Governance and management solutions must be reconsidered to incorporate commons-based models that enhance transparency, accountability, and collective decision-making. In this context, implementing a commons-oriented legal framework is crucial for supporting open access, data sharing, and cooperative intellectual property rights. Ethical and sustainable data management practices must also be established to ensure interoperability, long-term access, and responsible data use within GLAM institutions.

The potential of digital commons extends beyond governance structures and legal frameworks, opening up new possibilities for rethinking institutional workflows and sectoral culture. Peer production and peer governance models offer alternative approaches that emphasize decentralized, community-driven collaboration, reshaping engagement strategies within GLAMs. These principles can fundamentally inform organizational and sectoral culture, promoting open collaboration and shared digital infrastructure as key drivers of innovation and inclusivity.

## 5.1. Future avenues for Digital Commons and GLAMs, aligned with DIGIT's Priorities

Based on the current EU policy agenda, we identify three key areas for fostering synergies between digital commons and GLAMs, which relate to governance, data handling and ethics, as elaborated below.

### 5.1.1. Governance and management solutions for GLAMs

The sector and related policy need to encourage the **implementation of frameworks and practices that facilitate commons-oriented governance** and horizontal management practices, which can promote cultural democracy, inclusivity and shared ownership of resources in line to the **EU's strategic priorities**<sup>9</sup>. Towards this avenue, GLAMs can draw on the digital commons to integrate governance structures and models, where GLAM professionals and interested communities can actively participate in organisational and decision-making processes, such as content creation and management. For example, they can employ free software web platforms for **collaborative decision-making and tools for building consensus**, such as *Loomio*<sup>10</sup> and *Decidim*<sup>11</sup>. For decisions regarding the **allocation of financial resources**, GLAMs can use specially-developed **participatory budgeting tools**, such as *Cobudget*<sup>12</sup>. In addition, GLAMs can build and introduce governance structures to share cultural value, using **blockchain and P2P tools that allow for managing resources cooperatively**. Overall, both **Commons and Social and Solidarity**

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<sup>9</sup> <https://culture.ec.europa.eu/policies/strategic-framework-for-the-eus-cultural-policy>

<sup>10</sup> <https://www.loomio.com/>

<sup>11</sup> <https://decidim.org/>

<sup>12</sup> <https://cobudget.com/>

**Economy frameworks** (e.g. DisCO<sup>13</sup>) can be useful for informing GLAM sectoral practice to adopt structures of horizontal governance and co-management.

Moreover, in line to the **Digital Europe Programme**<sup>14</sup> the sector can aim for fostering **cross-border collaboration** and innovation in digital cultural initiatives by creating a **digital heritage commons network**, which will connect all GLAM institutions that employ (or wish to employ) practices and tools of the digital commons. This could serve as a centralized 'hub' for sharing best practices, hosting collaborative projects, and providing training. To build this, GLAMs can employ digital commons **cloud collaboration platforms**, such as *Nextcloud*<sup>15</sup>, and **open-source tools for decentralized team communication and file sharing** (e.g. *Mattermost*<sup>16</sup>).

In addition, **to encourage social and economic innovation**, GLAMs can foster innovation through community and user projects that **merge cultural heritage with technology**, such as augmented reality, blockchain for digital rights, and community archives. Creative projects can use **open digital heritage collections** (e.g., Europeana, Wikimedia Commons) and **open-source AR platforms**, such as *WebXR*<sup>17</sup> and *AR.js*<sup>18</sup>. Relevant initiatives can also encourage the development of decentralized grassroots digital archives, where communities can contribute personal stories, photographs, documents, and other evidence related to cultural heritage and history. This can be facilitated through **open-source repository software**, such as *Mukurtu*<sup>19</sup>. To grant permission to the public and share their data and metadata, GLAMs can employ *Creative Commons*<sup>20</sup>, *Copyleft*<sup>21</sup> and other **free licensing schemes**.

Regarding sustainability and resilience, GLAMs can incorporate **energy-efficient digital tools and practices**, while reducing the carbon footprint of digital infrastructures contributing to the goals of the **European Green Deal** digitalization strategies<sup>22</sup>. For instance, GLAMs can adopt digital commons tools that facilitate **eco-friendly digital infrastructures, low-energy**

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<sup>13</sup> <https://www.disco.coop/>

<sup>14</sup> <https://digital-strategy.ec.europa.eu/en/activities/digital-programme>

<sup>15</sup> <https://nextcloud.com/>

<sup>16</sup> <https://mattermost.com/>

<sup>17</sup> <https://immersiveweb.dev/>

<sup>18</sup> <https://ar-js-org.github.io/AR.js-Docs/>

<sup>19</sup> <https://mukurtu.org/>

<sup>20</sup> <https://creativecommons.org/share-your-work/>

<sup>21</sup> <https://copyleft.org/>

<sup>22</sup> See also, <https://digital-strategy.ec.europa.eu/en/policies/european-green-digital-coalition>

**hosting and decentralized storage**, such as the Youtube-alternative *PeerTube*<sup>23</sup> and *IPFS*<sup>24</sup> storage.

To help untap the potential of digital commons to transforming the GLAM sector, future policy could cater for the following:

### **Implement a Commons-Oriented Legal Framework**

- Develop EU-wide legislation recognizing digital commons as a distinct category in intellectual property law. This could offer a legal foundation for community-governed digital resources, protecting them from commercial exploitation while ensuring equitable access. It can support the **European Data Governance Act**<sup>25</sup> principles to empower community-driven data initiatives and open access resources.

### **Enhance Capacity Building and Digital skills**

- Organize training and resource-sharing initiatives for GLAM professionals on adopting commons-oriented digital strategies.
- Encourage cross-border collaborations to share best practices and develop common standards for digital GLAM projects.
- Support training for GLAM professionals and the public, in line with the Digital Decade's target to provide 80% of Europeans with digital skills by 2030<sup>26</sup>. This equips individuals to effectively engage with digital cultural resources, in line to Digital Decade skills initiatives<sup>27</sup>.

### **Launch a "Digital Commons Incubator"**

- Provide funding and technical support for pilot projects that explore innovative models of commons-based management for digital cultural assets. The incubator could encourage partnerships between GLAMs, tech companies, and local communities. Linked to the **Horizon Europe Programme**<sup>28</sup>, it can foster innovation in digital commons management.

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<sup>23</sup> <https://joinpeertube.org/>

<sup>24</sup> <https://ipfs.tech/>

<sup>25</sup> <https://digital-strategy.ec.europa.eu/en/policies/data-governance-act>

<sup>26</sup> [https://joint-research-centre.ec.europa.eu/jrc-news-and-updates/how-reach-eu-target-80-adults-basic-digital-skills-2030-2025-03-05\\_en#:~:text=The%20EU%20Digital%20Decade%20Policy,basic%20digital%20skills%20by%202030.](https://joint-research-centre.ec.europa.eu/jrc-news-and-updates/how-reach-eu-target-80-adults-basic-digital-skills-2030-2025-03-05_en#:~:text=The%20EU%20Digital%20Decade%20Policy,basic%20digital%20skills%20by%202030.)

<sup>27</sup> <https://digital-strategy.ec.europa.eu/en/library/report-state-digital-decade-2024>

<sup>28</sup> [https://research-and-innovation.ec.europa.eu/funding/funding-opportunities/funding-programmes-and-open-calls/horizon-europe\\_en](https://research-and-innovation.ec.europa.eu/funding/funding-opportunities/funding-programmes-and-open-calls/horizon-europe_en)

### 5.1.2. Data sharing and management

GLAM institutions shall aim for feeding their cultural data further **into the European data space and EU's shared data ecosystem**. This will enhance broad access to digital cultural resources whereas it can foster cultural and creative innovation, particularly in AI and data analysis (see for instance the **Digital Decade 2024** report<sup>29</sup>). To expand virtual worlds to the sector, immersive technologies, such as augmented and virtual reality can be integrated into GLAM experiences. This aligns with the **EU's Web 4.0 Strategy**<sup>30</sup> and fosters deeper public engagement with digital cultural heritage. To do so, cultural organizations can promote the development of **community-driven 3D cultural asset repositories using open standards** (*GLTF, Sketchfab Commons*) or encourage **crowdsourced 3D scanning** of historical sites with public licensing models.

At policy level, the following directions could serve as enablers to GLAMs' digital transformation:

#### Promoting interoperability for digital GLAM collections

- Aligning GLAM initiatives with the Interoperable Europe Act<sup>31</sup>, ensuring seamless data exchange between institutions and compliance with interoperability standards. This will enhance resource sharing and cultural collaboration across borders. This is in line to **European Interoperability Framework**<sup>32</sup> and the **Digital Decade 2024** report<sup>33</sup>. Together with the European Interoperability Framework, the use of the *Europeana Data Model*<sup>34</sup> and *Wikidata* could ensure seamless integration across platforms.

#### Enhancing the European Cultural Heritage Cloud

- Expanding the scope of the European Collaborative Cloud for Cultural Heritage<sup>35</sup>, integrating commons-oriented functionalities, such as decentralized archives and

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<sup>29</sup> *ibid.*

<sup>30</sup> See <https://digital-strategy.ec.europa.eu/en/news/towards-next-technological-transition-commission-presents-eu-strategy-lead-web-40-and-virtual>

<sup>31</sup> <https://interoperable-europe.ec.europa.eu/interoperable-europe/interoperable-europe-act>

<sup>32</sup> [https://ec.europa.eu/isa2/sites/default/files/eif\\_brochure\\_final.pdf](https://ec.europa.eu/isa2/sites/default/files/eif_brochure_final.pdf)

<sup>33</sup> See <https://digital-strategy.ec.europa.eu/en/factpages/state-digital-decade-2024-report>

<sup>34</sup> <https://pro.europeana.eu/page/edm-documentation>

<sup>35</sup> [https://research-and-innovation.ec.europa.eu/research-area/social-sciences-and-humanities/cultural-heritage-and-cultural-and-creative-industries-ccis/cultural-heritage-cloud\\_en](https://research-and-innovation.ec.europa.eu/research-area/social-sciences-and-humanities/cultural-heritage-and-cultural-and-creative-industries-ccis/cultural-heritage-cloud_en)

participatory governance tools. This supports **NextGenerationEU**'s goals of digital transformation and cultural innovation<sup>36</sup>.

- This can be facilitated by an open and decentralized cloud architecture that encourages peer-to-peer (P2P) cloud storage solutions that distribute hosting across public institutions, as well as, commons-based digital preservation strategies.

### 5.1.3. Ethics

Ethics are also a critical dimension in digital commons development. The sector needs to develop a set of **ethical guidelines for digitizing and sharing cultural heritage to ensure respect for cultural sensitivities**, especially concerning indigenous or marginalized communities' heritage. This can balance digital accessibility with the rights of source communities and support the **Charter of Fundamental Rights of the EU**<sup>37</sup>, promoting cultural diversity and inclusion in digital spaces.

GLAM institutions can fully embrace **FAIR (Findable, Accessible, Interoperable, Reusable)** data principles and lead their expansion to cultural heritage by enhancing the discoverability and reuse of cultural data and by supporting open licenses and public domain tools. This approach can promote transparency and align with EU research and data-sharing standards. This can advance the goals of the **Open Science Agenda**<sup>38</sup> and the **European Open Data Directive**<sup>39</sup>, building on the **Copyright in the Digital Single Market Directive**<sup>40</sup> to harmonize access to cultural content across the EU.

In terms of policy, related actions could focus on:

#### Encouraging the adoption of European Digital Identity in GLAMs

- Utilizing the **EU Digital Identity Wallet**<sup>41</sup> to standardize user access to GLAM resources. This can ensure secure authentication and streamlines interactions

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<sup>36</sup> [https://ec.europa.eu/economy\\_finance/recovery-and-resilience-scoreboard/digital.html](https://ec.europa.eu/economy_finance/recovery-and-resilience-scoreboard/digital.html)

<sup>37</sup> [https://www.europarl.europa.eu/charter/pdf/text\\_en.pdf](https://www.europarl.europa.eu/charter/pdf/text_en.pdf)

<sup>38</sup> [https://research-and-innovation.ec.europa.eu/strategy/strategy-research-and-innovation/our-digital-future/open-science\\_en](https://research-and-innovation.ec.europa.eu/strategy/strategy-research-and-innovation/our-digital-future/open-science_en)

<sup>39</sup> <https://digital-strategy.ec.europa.eu/en/policies/legislation-open-data>

<sup>40</sup> <https://eur-lex.europa.eu/EN/legal-content/summary/copyright-and-related-rights-in-the-digital-single-market.html>

<sup>41</sup> <https://ec.europa.eu/digital-building-blocks/sites/display/EUDIGITALIDENTITYWALLET/EU+Digital+Identity+Wallet+Home>

between users and institutions, promoting EU Digital Identity initiatives and EC Digital Strategy.

### **Leveraging AI for Cultural Accessibility**

- Leveraging funding through the **AI Innovation Package**<sup>42</sup> to develop tools that enhance accessibility for diverse audiences. This includes automated translations, assistive technologies, and advanced archival search capabilities.
- Supporting commons-based AI projects that avoid commercial exploitation of cultural data.

## **5.2. Peer production and peer governance in the realm of the digital commons**

In the realm of digital commons, information and knowledge function as public goods that are both non-excludable and non-rivalrous. Instead of being enclosed and commodified for profit, digital commons resources are disseminated under open licensing frameworks (Dulong de Rosnay & Le Crosnier, 2012) and their value increases as they are being used, further reinforcing their collective benefits (Kioupiolis, 2022). They operate as common-property systems where technology, knowledge, and culture resources circulate within virtual communities of contributors (e.g., computer scientists, software developers, researchers and others) and can be infinitely reproduced at little to no marginal cost. These communities comprise self-selected volunteers who contribute time and expertise to digital commons initiatives based on principles of shared purpose, transparency, mutual peer review, and collective decision-making (Kioupiolis, 2022: 58). They are open, inclusive, yet heterogeneous communities that transcend geographical boundaries (Ossewaarde & Reijers, 2017). Their rules of interaction and mode of cooperation ensure that the utilization of digital commons contributes to a cyclical process of resource regeneration, wherein technology, knowledge, and culture are perpetually replenished (Papadimitropoulos, 2020).

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<sup>42</sup> <https://digital-strategy.ec.europa.eu/en/factpages/ai-innovation-package>

The digital commons paradigm fosters alternative approaches to knowledge production and distribution by encompassing community networks, open-source software, digital content under non-commercial Creative Commons licenses, and digital platforms (Fuchs, 2021). Free and open-source software exemplifies this commons system, as it permits unrestricted copying, use, modification, and redistribution (Benkler, 2016). Within this framework, digital commons propose a new paradigm of social relations (Graeber, 2001), where ownership of digital assets is decentralized and resources circulate outside traditional markets (Fuchs, 2021).

Decentralisation of ownership and production is key to the viability and thriving of such an ecosystem. In particular, digital commons rely heavily on cooperation and decentralised production through the P2P model. Bauwens (2009: 122) conceptualizes P2P as a relational dynamic within distributed networks, enabling autonomous participation through voluntary self-aggregation. Peer production represents an arrangement wherein various teams of commoners collaborate asynchronously in the creation of information, knowledge, and culture, bypassing conventional hierarchical management structures (Benkler & Nissenbaum, 2006; Kostakis et al., 2018). This model fosters value creation through the collective governance of tangible and intangible assets. According to Bauwens et al. (2019), peer production serves as a prefigurative prototype coexisting alongside other economic models, characterized by three fundamental principles: (1) the open and unrestricted circulation of raw materials, (2) participatory processing, and (3) the cyclical generation of new commons-based outputs (Bauwens, 2009: 122). This self-sustaining system ensures that surplus value remains within the commons (Bauwens et al., 2019).

Peer governance within digital commons emphasizes inclusivity and participatory coordination, distinguishing itself from conventional bureaucratic or hierarchical governance models (Kioupkiolis, 2022). Unlike traditional command-and-control structures, digital commons governance relies on emergent and voluntary hierarchies that facilitate collective decision-making without centralized authority (Bauwens, 2009). The collaborative and self-governing practices characteristic of digital commons align closely with democratic principles, fostering pluralism, participation, and openness (Kioupkiolis, 2022).

The former implies that commoning in the realm of digital commons can go well beyond the integration of peer production into crowdsourcing models and Web 2.0 models. A key distinction is the integration of profit generation with benefit-sharing, ensuring that contributions made to a commons are reciprocated with resources that enhance its

sustainability (Bauwens, 2009). This is distinct from both crowdsourcing models, where businesses can incorporate peer-to-peer contributions into their value chains (often raising concerns about unpaid labour and the asymmetric appropriation of surplus value), and from Web 2.0 models, where users create content that is ultimately controlled by host platforms and applications (e.g. YouTube, TikTok, etc.) that monetize attention and engagement through advertising and data handling. Unlike extractive models that centralize control and reap disproportionate benefits from decentralized peer production (Papadopoulos, 2020), commons-based peer production prioritises a kind of 'generative entrepreneurship', which creates value for communities and the commons (Bauwens et al., 2019: 35).

### **5.3. How can digital commons inform GLAM organizational and sectoral culture?**

A review of the literature on digital commons highlights the transformative potential of emerging networking technologies in fostering a commons-oriented society. These technologies enhance communication, facilitate value creation and distribution, and enable self-organization (Bauwens et al., 2019). This transformation has significantly influenced the cultural sector, with many digital tools being adapted to meet the specific needs and objectives of GLAMs. European and global initiatives, such as the European Commission's 'Europeana' portal, OpenGLAM, and GLAM-Wiki, have played a pivotal role in inaugurating a new digital era, granting access to millions of cultural and archival resources. While digital media are recognized as catalysts for participatory and audience-engaging GLAMs (Axelsson, 2019), further research is needed to examine how they can reshape professional practices and promote a commoning culture within the sector.

Digital technologies introduce new possibilities for curatorial work by providing infrastructures that reshape the circulation, interpretation, and contextualization of museum objects (Axelsson, 2019). The OpenGLAM movement, for instance, has sought to establish principles of openness within the GLAM sector, advocating for a culture of sharing inspired by the social internet (Sanderhoff, 2014: 23-24). In this context, 'openness' encompasses both unrestricted access to GLAM resources (e.g., artefacts, audiovisual materials, data) and the active participation of audiences and communities through crowdsourcing. Digital openness fosters the exchange of ideas and information, which in turn drives innovation in the knowledge economy (Cousins, 2014).

Cultural digital open repositories, such as Europeana, hold the potential to function as 'cultural commons' when content providers, including cultural institutions and users, collaborate as a self-sustaining community that continually innovates to engage broader audiences (Cousins, 2014: 133). The Europeana Foundation articulates five core principles for sustaining a European cultural commons: (a) fostering mutual benefit within the community, (b) ensuring access to content, tools, and services for creative development, (c) recognizing and respecting rights through appropriate attribution, (d) maintaining consistency with sectoral values as aligned with EU policy, and (e) ensuring sustained engagement from community members (Edwards, 2015: 7). Europeana envisions the European cultural commons as a resource that can benefit the creative industries by providing access to GLAM content, fostering innovation, and enhancing skill development. The resulting applications, websites, and digital projects contribute to both cultural heritage institutions and economic growth (Cousins, 2014: 136). Efforts such as the Europeana Creative Project have aimed to build a digital infrastructure to facilitate collaboration between GLAMs and sectors like education, tourism, and the creative industries, although full implementation remains a challenge. However, Europeana operates as a top-down initiative, fully funded and regulated by the European Union, and consequently prioritizes EU policy objectives.

The concept of 'museum digital practice' has emerged to define activities within GLAMs that employ digital tools and platforms (Sanderhoff, 2014: 25). The integration of new technologies within GLAM institutions has enhanced public access to collections while also enabling users to appropriate cultural content for educational, creative, and expressive purposes (Von Haller Grønbæk, 2014). For instance, the Rijksmuseum's 'Rijksstudio' initiative encourages users to create personalized digital collections, modify images, and interact with others, thereby contributing to the broader 'open content movement' (Axelsson, 2019).

At the same time, the formation of public-private partnerships in digital GLAM projects raise ethical and practical concerns. Collaborations with initiatives such as 'Google Arts & Culture' suggest that publicly funded cultural institutions are transferring rights over public artworks to for-profit corporations in exchange for large-scale digitization services (Sanderhoff, 2014: 69). Such partnerships risk creating 'walled gardens' that limit public interaction with digital heritage by confining access to proprietary platforms, raising significant ethical considerations. To align with public interest and their societal mission, GLAMs require a robust framework to address these challenges that integrates digital commons practices and accounts for resource management, community governance, and the broader principles of commoning, in accordance with commons theory.

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