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Digital Cultural Heritage Of Minorities And Indigenous Peoples: Towards A More Participatory Governance Framework For Decision-Making

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Abstract

Cultural heritage (CH) is a core element of the identity and self-determination of minorities and Indigenous peoples. Digital technologies, especially artificial intelligence (AI), offer new ways to preserve, revitalise, and share CH. However, issues related to intellectual property, human rights, and data governance often limit fair participation and hinder authentic representation of these communities.

This article examines these issues and explores governance models, proposing more inclusive frameworks for digital CH. Protecting, preserving, and revitalising the CH of minorities and Indigenous peoples has been prioritised by current regulatory frameworks, e.g. in the European Union. Nevertheless, there is a lack of comprehensive mapping of the current models of governance employed by CH institutions. Such mapping would enable scholars and stakeholders to better understand the challenges and opportunities posed by digitisation and AI, particularly regarding the authenticity of content representation in minority and Indigenous CH.

This article offers a new holistic overview of governance models in the digitisation of Indigenous and minority CH. The findings are based on a scoping review undertaken to identify scientific publications dealing with the role of law and policies governing the participation of minorities in decision-making processes. This review sheds light on overlooked, unresolved, or controversial legal and policy issues implicit in the existing governance models. Such issues can hinder the participation of minorities in CH digitisation decision-making processes. Consequently, this can affect the authenticity of the contents of the digitised material.

We conclude by proposing ways of leveraging user-centricity and proactiveness. This will promote more effective engagement and participatory practices to better support the existing governance frameworks for digitisation and the use of AI in relation to minority and Indigenous heritage.

Keywords: Digital cultural heritage, Artificial Intelligence (AI), Law, Policies, Governance, Decision-making, Minorities, Indigenous peoples, Participation, Representation.

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Introduction

Cultural heritage (CH) is a crucial element in the process of identity definition, representation and self-determination of minorities and Indigenous peoples. In turn, digital technologies, particularly artificial intelligence (AI), are an increasingly important part of documenting, preserving, accessing, and renewing such CH. The digitisation of the CH of Indigenous and minority groups can enhance their cultural resilience, foster community empowerment, and promote mutual understanding and cooperation between different stakeholders at the local level (Arthur et al. 2023). However, the digitisation of CH can also pose challenges. This is particularly true when technologies such as AI are used. Among other concerns, the integration of such technologies into the CH of minorities raises issues of intellectual property, human rights, and data governance (Tuominen et al. 2023). This poses challenges regarding concepts of ownership and property, rights of use, and the appropriate representation of Indigenous and minority cultural expressions. Overall, this could reduce the participation and inclusion of these groups, hinder the equitable representation of diverse values in digitisation, and increase the risk of misuse of digital CH.

Recognising these challenges, the European Union (EU) has developed various legal and policy frameworks to promote inclusivity and diversity in the digitisation of minority heritage. At the same time, it is seeking to strike a balance between information protection and access. In this respect, the European Commission has consistently emphasised that public sector information should remain in the public domain once digitised. For example, the Open Data Directive (2019/1024), which regulates the opening and reuse of digital datasets published by EU public sector bodies, stipulates that documents from libraries, museums, and archives should be 'reusable'. It also promotes their availability in open, machine-readable formats accompanied by metadata and the use of open standards. Article 14 of the Digital Single Market Directive (2019/790) requires the reproduction of public domain material to remain in the public domain. The Commission's recommendation of 10 November 2021 on a common European data space for CH also reiterates the positive impact that the dissemination and reuse of digital CH can have. Moreover, the Data Act (COM/2022/68 final), which complements the Data Governance Act (2022/868), establishes minimum standards for the opening, reuse, preservation, and fair exploitation of digital CH resources, while ensuring equitable stewardship.

However, if observed from the perspective of minorities and Indigenous peoples, such a mandate focused on the use and reuse of CH poses important challenges, both in terms of open data policies and intellectual property rights (Ballardini et al. 2021, Hossain & Ballardini 2021). Although the EU has declared that the rights of members of minorities should be respected by the EU (Article 3(3) of the EU Treaty and Article 21 of the EU Charter of Fundamental Rights), the protection of minority digital CH thus far falls short of some of the emerging

international human rights standards on CH. An example of this is the right to self-determination (Olsén 2019). Such policies in favour of 'openness' can clash with other EU laws (e.g. copyright), limiting the possibility of opening digital CH in the first place. The policies are also particularly problematic when it comes to the digital CH of minorities, as the open policy can be perceived as incompatible with the principles and shared values of the minorities themselves. Consequently, such policies provoke fears of digital objects being misused or taken out of context, as well as concerns over the exploitation of public domain material for commercial gain. This mistrust can, in turn, lead to a reluctance on the part of these communities to share their own CH, thus reducing the availability of this material and subsequent opportunities for reuse. Furthermore, there is a clear and pressing need for greater legal clarity around IPR, ethical considerations, and the digital reproduction of minority CH (Wallace & Euler 2020).

Overall, there is a lack of a broader, holistic understanding and knowledge of participatory governance models that could enable CH institutions, scholars, and stakeholders to better address these challenges. Such models are essential for harnessing the opportunities that digitisation and AI present in terms of authenticity of content, value, and appropriate representation of minority and Indigenous CH. To that effect, this article addresses this gap by providing a fresh, holistic overview of the governance models currently in use in the field of Indigenous and minority CH digitisation. The research is based on a scoping review conducted to identify scholarly publications addressing the role of law and policies for minority participation in decision-making processes related to digital CH. This includes decision-making processes related to the initiation and management of new digitisation efforts, and to the governance of access to previously digitised materials. This allows us to highlight currently unresolved or controversial legal and policy issues implicit in these existing governance models that may hinder minority participation in CH digitisation decision-making processes and, as a consequence, affect the authenticity of the content. We conclude with a set of proposals on how user-centric approaches and related practices can support governance models that promote more effective engagement and participation, ultimately enabling more respectful and inclusive digitisation of minority and Indigenous heritage. In the context of this article, user-centricity refers to how certain design processes are carried out and how people connect to and interact with different systems in a general sense. User-centricity, in this vein, is a manner of making a certain system easier and better suited to its users and also improving or changing the system at a deeper level (Hagan n.d.; see also Luchs et al. 2015). Therefore, the 'users' in this context are not a clearly defined group (as might be the case with designing a product for certain types of customers), but rather anyone who relates to the existing governance and policy models in a certain position or role.

DIGITISATION and MINORITY Cultural Heritage: Shield or Sword?

Developments in digital technologies have brought both opportunities and challenges to many sectors – memory institutions (such as archives and museums) and CH organisations being no exception. In this context, both advanced digitisation techniques and increased opportunities to open collections online are significant factors to consider, as institutions are now able to digitise new categories of materials, in greater quantities and at higher levels of quality. Advanced digital technologies such as AI, machine learning, cloud computing, 3D modelling, and virtual and augmented reality have significantly expanded the opportunities for digitisation, online accessibility, and digital CH preservation. These opportunities affect both the initiation and management of new digitisation processes, as well as the governance of access to previously digitised material. Indeed, these technologies enable ground-breaking forms of artistic creation, provide new opportunities for the promotion of Indigenous culture, and thus reinforce pluralism and tolerance. The technologies also introduce new ways of engaging with digital CH content through co-curation, co-design, and crowdsourced contributions, thereby enhancing participation (Commission Recommendation (EU) 2021/1970 of 10 November 2021 on a common European data space for CH).

The online dissemination of materials provides previously inaccessible information and value to associated communities due to the fact that earlier, the materials were kept exclusively in physical form within institutional premises (Mäkikalli et al. 2021). However, the more material that is available online, the greater the risk of misuse and appropriation (Linkola et al. 2025). As Jon Bing has commented, in the field of digital CH it is important to develop 'a project' to make a greater amount of CH content available in digital form and to establish criteria and principles for computerisation, and coordinate this (project) on a national and EU level. According to Bing, "this involves libraries, but also archives and museums – illustrating the converging force of information technology". Bing maintains that "this poses new issues on several fronts" (Bing 2005). For instance, the application of AI, particularly generative AI (Gen-AI), to the digital CH environment poses significant risks related to authenticity, provenance, and bias of the newly generated digital datasets. Gen-AI can create realistic but synthetic artefacts, making it difficult to distinguish authentic heritage from AI-generated content. This can potentially undermine the trustworthiness and the authenticity of digital archives or digital museums. In addition, Gen-AI can reinforce prejudices regarding minorities and Indigenous culture and communities, as algorithmic biases risk distorting cultural representation, marginalising diverse cultural narratives and reinforcing existing inequalities. While Jon Bing did not specifically address Gen-AI, his work provides a useful lens through which to examine today's AI-related legal

and ethical challenges. The fundamental issues he identified, however, remain at the core of AI governance. Examples of these are automation, digital rights, legal access, ethical considerations, and accountability. His insights underline the fact that, as technology evolves, many of the underlying legal and ethical issues remain strikingly persistent.

To our knowledge, legal proceedings have not yet emerged in relation to modern types of digital tools such as AI and their use in digitising minority heritage. However, there have been several legal cases in regard to CH digitisation in general. For instance, the risks materialised as early as 2020, when the British Museum made nearly 1.9 million images of archival and museum material available online. Some of the images were related to Indigenous communities and included images of human remains, which are often considered highly sensitive and can hold particular spiritual significance for Indigenous communities. These materials were made freely available under a Creative Commons 4.0 licence (Open Culture 2020). Similarly, in the same year, the Finnish Heritage Agency released over 200,000 images online under a CC BY licence (Finnish Heritage Agency 2020). Archival photographs of Indigenous peoples have been used on mobile phone covers or clothing without the consent or permission of the communities or individuals concerned (Tammela 2021). It is clear that the dissemination of materials in this way leaves little to no control over the materials for the Indigenous communities involved.

In this context, the so-called 'Sinaida case' is especially illustrative. In 2021, YLE radio Oy, the Finnish Broadcasting Company, reported a case involving an image of a Skolt Sámi woman, Sinaida (Tammela 2021)[1]. Her granddaughter, Laura Feodoroff, had become aware that the picture of her late grandmother was being used in commercial products, such as phone covers and pillowcases, in an American online store. A Brazilian artist had downloaded the image of Sinaida from the account of the Finnish Museum of Photography on Flickr, added colours to it, and sold it online as an art product. Indeed, in line with many other institutions, in 2016 the Finnish Museum of Photography opened part of its collections online to be freely used under the Creative Commons licence CC0 – No Rights Reserved (Creative Commons 2009). According to the licence: "In contrast to CC licenses that allow copyright holders to choose from a range of permissions while retaining their copyright, CC0 empowers yet another choice altogether – the choice to opt out of copyright and database protection, and the exclusive rights automatically granted to creators – the 'no rights reserved' alternative to our licenses". Such a licence also allows use of the work for commercial purposes. According to the

1 Skolt Sámi are a small group of Sámi people who speak the Skolt Sámi language. In Finland, there are three main Sámi languages spoken: Inari Sámi, Northern Sámi, and Skolt Sámi.

museum's chief curator Anni Wallenius, the thinking behind the decision was that the museum would intervene as little as possible in how the public can use the images within the limits of the legislation and copyright (Tammela 2021). However, as Wallenius noted, the museum did not foresee the potential ethical and moral ramifications of making the pictures available online under the CC0 licence. The passage was translated by Iiris Tuominen, and parts of the interview were previously published in Tuominen et al. (2023). As soon as the museum became aware of the incident, it removed the photos from Flickr. Laura Feodoroff and her relatives also contacted the Brazilian artist, who was sympathetic to their concerns and removed the picture. However, as Feodoroff told YLE, it took several steps to remove the picture from the online store, as the image had ended up in other products in the online store. It was only after Feodoroff filed an official complaint with the American online store that the image was ultimately removed from sale. Wallenius told YLE that based on this case, the Finnish Museum of Photography decided to update its practices by liaising with the Sámi Museum Siida as well as Sámi researchers and activists to ensure the materials are made available online in a more thoughtful manner in the future (Tammela 2021).

As the Sinaida incident illustrates, one problem that can be identified in the context of online collections is the uncontrollable commercial use by the majority population, which often marginalises the voice of Indigenous groups and provides little benefit to Indigenous communities. This risks the exoticisation and stereotyping of Indigenous peoples. Similarly, the historical background of many cultural institutions poses important challenges in terms of the colonial legacy of representations of Indigenous cultures in Western cultural institutions. This legacy can also influence CH digitisation initiatives. However, this history has rarely been addressed in the context of memory institutions, many of which have several colonial collections (e.g. the National Museum of World Cultures in the Netherlands, the Museum Europäischer Kulturen in Germany, the British Museum in England, and the Smithsonian Institution in the US). Through digitisation, the field is taking a step forward that bears an acute risk of continuing colonial practices rather than reconciling them.

In this respect, collections containing human remains seem particularly important. For example, Swedish, Finnish, and Norwegian museums have long held collections of Sámi bones and skulls. Many of these remains have been exploited for scientific purposes in the study of racial differences. A notorious institution in this regard was the Unit in Uppsala, a government-funded research institute that studied eugenics and forcibly sterilised thousands of Sámi women (The Guardian 2019). In Finland, the University of Helsinki donated its bone collection to the Sámi Museum Siida in 2001 (YLE 2019). However, many other institutions have not yet returned their bone collections to the communities. While the issue of human remains is an

extreme example, it highlights that care is needed and the past to be addressed before opening collections online to ensure that the same mistakes are not repeated.

In certain cases, technological developments make it possible to advance processes of reconciliation and restitution (Hennessy 2009). For example, the repatriation of objects regulated by international and EU law is a complicated legal and political process, while digital repatriation is much less effort- and resource-intensive. Digitising and providing access to museum collections and archival materials allows these items to be repatriated quickly. However, digital repatriation should be used as a temporary solution rather than a quick fix for institutions (Stahn 2022). At the same time, this example highlights the broader issue of broken governance models in CH management. The lack of inclusive and ethical frameworks has allowed past practices to perpetuate harm, such as the mishandling of sensitive materials and the exclusion of Indigenous perspectives. Governance models that prioritise transparency, inclusivity, participation, and respect for cultural contexts are critical to ensure that digitisation processes are conducted in a manner that is respectful of indigenous perspectives (Christen 2009).

By ensuring that Indigenous communities are actively involved in defining how their heritage is digitised, represented, and accessed, digital technologies can foster meaningful and critical exchanges that are grounded in informed consent and cultural knowledge (Sarantou et al. 2024). Such participatory and ethically grounded governance models are essential for fostering trust, addressing historical imbalances, and promoting collaboration that aligns with the values of Indigenous communities while preserving the integrity of their CH (Qureshi et al. 2005).

Some of these issues stem from the inherent challenges in regulating intellectual property, which limit the rights that Indigenous communities can exercise regarding the digitisation of their CH. More generally, many challenges arise from the decision-making process that surrounds the digitisation of Indigenous CH. Specifically, decisions regarding digitisation should open spaces for the participation of Indigenous communities, their worldviews, and cultural values. It is by opening such meaningful spaces for participation that ensures communities have a voice in shaping how their heritage is preserved and represented.

This lack of representation in decision-making processes is indicative of deeper governance deficiencies. Without inclusive frameworks, digitisation risks perpetuating historical inequities and marginalising the very communities it seeks to empower. Effective governance models must not only provide legal and procedural clarity but also prioritise the active involvement of Indigenous voices.

To address these past deficiencies, this study highlights that the governance models must prioritise the active involvement of Indigenous communities, ensuring their voices are central in shaping how their CH is preserved, digitised, and represented. This requires adopting frameworks that respect minority and

Indigenous knowledge systems, cultural practices, and governance structures, ensuring that digitisation efforts align with their values and aspirations. Only by opening spaces for such participation can digitisation serve as a tool for empowerment, reconciliation, and the preservation of CH in a way that truly benefits minorities and Indigenous peoples.

Governance Models for minority Participation: A SCOPING REVIEW

Governance of the digital CH of minorities and Indigenous peoples poses challenging questions for democracies that strive to be inclusive of diverse cosmologies, and where the forceful imposition of Western or majoritarian ways of being is legally and ethically unacceptable (Anaya 2004). In this context, policymakers and scholars have developed an increasingly robust regulatory toolkit to tackle the challenges of the interaction of divergent worldviews and their distributive implications (Engle 2010). Regulatory strategies have mostly focused on creating formal participation procedures and on opening more informal spaces for giving a voice to minorities and Indigenous peoples in settings of experimental governance. The most comprehensive international system of participation to date was established by the amalgamation of the UN Declaration on the Rights of Indigenous Peoples and the ILO Convention 169. At its most protective, the UN Convention requires, as a matter of self-determination, free, prior, and informed consent (FPIC) for projects affecting resources customarily used by Indigenous peoples. Less demanding, but of wider application, ILO Convention 169 creates a duty of consultation with the objective of achieving agreement or consent (Rombouts 2017). Other regional instruments establish a more ambitious system of Indigenous participation in governance (Clérico & Aldao 2011).

Outside such formal and legalised spaces of participation, other forms of participation can be undertaken. This is the case of the decision-making processes regarding the digitisation of CH, where more informal practices of governance have been observed. To map such models of governance in minority and Indigenous CH digitisation, we conducted a scoping review during 2024 in the context of the project "Digitisation of cultural heritage of minority communities for equity and renewed engagement in the EU (DIGICHer)". See also Ballardini et al. 2025 (submitted and forthcoming), Deliverable 2.1, "Map of best practices of governance models for minority participations". This review explored decision-making processes in minority and Indigenous CH digitisation, focusing on governance models discussed in the literature and their incorporation of minority and Indigenous perspectives.

The scoping review process began with a comprehensive search across relevant academic databases to identify articles exploring the intersection of digital CH,

minority and Indigenous participation, and governance models. This included an extensive content search conducted through LUC-Finna (LUC Library Guides n.d.), providing access to over 887 databases. From this collection, six databases were selected as the most relevant to the research topic, namely: Scopus, Web of Science, Westlaw UK, Westlaw, HeinOnline, and Kluwer Law Online. These were chosen for their focus, especially on governance, law, and policy. Boolean search techniques (New York Public Library 2012) were employed to explore five thematic fields: 'digitisation,' 'cultural heritage,' 'minorities,' 'Indigenous,' 'legal and governance aspects,' and 'participation and inclusion.' Notably, Scopus, Web of Science, Westlaw UK, Westlaw, and Kluwer Law Online produced fewer than ten results, and sometimes no results, for the selected fields. However, HeinOnline emerged as the most significant source, providing 2,762 articles. After filtering for full-text availability and relevance, 981 articles remained. Following the removal of duplicates and further refinement, 662 articles were retained for analysis.

Due to HeinOnline's prominence, the research team – comprising five members, including four legal experts in various relevant fields and one specialist in visual data analysis – distributed the 662 articles relevant to minorities, Indigenous groups, and digital CH, assigning approximately 132 articles to each member. Three key characteristics of the scope in the first screening process should be noted. First, the screening phase focused on abstracts (or introductions, where abstracts were unavailable). Second, following the research team's language skills, abstracts in English, Finnish, French, Italian, Portuguese, Spanish, and Urdu were selected. Finally, the scoping review was performed in the context of a project with a European geographical focus. Consequently, articles were selected on the basis of whether they were potentially relevant to providing understanding in the European context. Thus, abstracts of studies on Europe were selected, as were international and comparative studies potentially applicable to Europe.

A second screening round further refined the selection, focusing on articles explicitly addressing minorities and/or Indigenous peoples, their involvement in digital CH, and alignment with the European geographical scope. This process resulted in 110 articles for full review.

To guide the in-depth analysis, the team established the following two core research questions:

1. What decision-making processes and models have been used in Europe in the digitisation of the cultural heritage of minorities and Indigenous peoples?
2. What models or approaches have been used for the participation of minorities and Indigenous peoples in the digitisation of cultural heritage?

The full-text review of the 110 articles was conducted exclusively by the team of four legal experts. The findings were systematically categorised using a shared spreadsheet, facilitating collaborative data extraction and organisation. This process led to the identification of 27 articles that met all predefined criteria, forming the final dataset for in-depth analysis. To categorise governance models for decision-making in the digitisation of Indigenous and minority CH, the research team employed the AI tool Notebook LM to support the synthesis of the information from the papers and the extraction of key patterns and themes. From the team, three researchers – two with legal expertise and one specialising in visual data analysis – collaborated to refine the analysis through iterative discussions. By utilising precisely crafted prompts with the AI tool, diligently refined and checked by the team of three researchers both individually and as a group, the team identified four distinct clusters of governance models, reflecting a variety of approaches and practices found in the literature (a comprehensive and detailed description of the process followed in the scoping review can be found in the Deliverable 2.1., "Map of best practices of governance models for minority participations", submitted and forthcoming in 2025).

This comprehensive review not only mapped governance frameworks for minority and Indigenous CH digitisation but also underscored the importance of inclusive decision-making processes that amplify minority and Indigenous voices. Thus, the following four essential clusters of governance models were identified:

1. Collaborative and participatory models
2. Third Space approaches
3. Access and benefit sharing
4. Embedded cultural practices and values.

In what remains of this section, we will discuss these clusters and explore their potential and limitations.

Collaborative and Participatory Models

In this first style of governance, the goal is to create spaces to involve communities in the decision-making process, so that the digitisation of Indigenous and minority community CH is conducted in an ethical, responsible, and beneficial manner for these communities, as well as for local communities. It is necessary to include source communities as equal partners to prevent the perpetuation of colonial power imbalances and ensure the ethical and culturally sensitive treatment of heritage. This necessitates a shift in power dynamics, recognising the expertise and agency of those communities and creating spaces for genuine collaboration and shared decision-making. This includes mechanisms for community-centric access models

based on legal pluralism and empowerment of communities to govern their CH (Perla 2020).

A central topic of discussion regarding collaborative and participatory models of governance is the proposal put forth by the Sarr-Savoy Report. This report, in its commentary on the restitution of African CH, underscores the necessity for "a radical change in the practice of sharing" digitised content (Lixinski 2020). Nonetheless, critics of this report, such as Pavis and Wallace (2019), posit that establishing digitisation as a prerequisite for restitution could serve to perpetuate colonial power dynamics, for example, by conferring control over digital representations of African heritage upon French institutions (Lixinski 2020). Alternatively, they propose that a more effective approach would involve granting African communities and institutions comprehensive authority over the digitisation process, allowing them to decide whether, how, and to what extent their heritage is digitised and shared. This practice underscores the significance of transferring control over digitisation processes and ownership of digital surrogates to the source communities. The Pavis and Wallace (2019) critique of the Sarr-Savoy Report also outlines the potential risks associated with digitisation projects that prioritise open access and sharing without sufficiently accounting for the perspectives and needs of source communities. Involving source communities and individuals in the development of metadata, indexing, cataloguing, and defining target audiences for digital archives has the potential to transform digitisation from a mere translation of existing material into a dynamic process of knowledge production and meaning making (Tureby & Wagrell 2020). This approach, which is rooted in participatory archiving principles, has the capacity to empower marginalised communities and contribute to a more inclusive and democratic representation of history.

Equally important is the implementation of co-design and co-production models of digitisation, aimed at creating new value for heritage and reducing the digital divide. These proposed practices shift the focus from the physical objects themselves to the social and cultural practices that imbue them with meaning (Polymenopoulou 2021). The experience of Australian museums in digitising Pacific collections demonstrates the significance of such co-design and consultation processes, even in instances where the physical objects are not returned. Furthermore, the aforementioned sources illustrate the value of co-design and co-production models for generating new value for heritage and fostering more equitable relationships between source communities and institutions (Lixinski 2020).

Third Space Approaches

The second cluster of governance models is the so-called 'Third Space' approach, which denotes a digital environment that extends beyond the mere presentation of the object in question. The objective is to mitigate the potential for neo-colonialism

in digitisation efforts by empowering communities to shape the narrative around their CH. Rather than merely serving as passive subjects of digital documentation, communities can engage actively in the curation and interpretation of their heritage in the digital domain (Stahn 2022). This approach acknowledges the potential of digital technologies to democratise access to heritage while recognising the risks of perpetuating colonial power dynamics and misappropriation. This shift in power dynamics allows those communities to determine whether, how, and to what extent their heritage is digitised and shared.

This model of governance is different from, and potentially complementary to, the previously described models of collaboration and participation. The 'Third Space' fosters collaborative partnerships where source communities and institutions work together as equal partners in co-designing and co-producing digital heritage projects; however, it does not require prior formal participation in the decision-making process. Instead, 'Third Space' approaches focus on the modes of deployment of digitised CH and the inclusion of minority and Indigenous voices in that process, thereby complementing existing frameworks for participation. Thus, this approach emphasises reciprocal relationships, recognising the expertise and agency of source communities and valuing their knowledge systems. Moreover, the 'Third Space' concept advocates the utilisation of digital technologies to transform CH, transcending mere replication to facilitate novel forms of engagement, interpretation, and meaning-making (Stahn 2022). By engaging source communities in the development of metadata, indexing, and curation, digital archives can evolve into dynamic platforms for reclaiming narratives, fostering cultural understanding, and challenging dominant historical perspectives (Perla 2020).

Access and Benefit Sharing (ABS)

The third cluster of governance models relates to Access and Benefit Sharing (ABS). As we have seen, the potential for digitisation to exacerbate the misappropriation of Indigenous CH is a significant concern (Prazmowska 2020). This is because digitisation makes CH easily accessible without providing cultural context or facilitating contact with source communities. Consequently, there is a pressing need for robust legal frameworks to address these challenges. While recognising the potential of digitisation to enhance transparency, renew memory, and facilitate reconnection with objects, concerns are raised about appropriation and alienation. This highlights the necessity for community control over access and use.

ABS is different from, and complements, both the participation and 'Third Space' models of governance discussed above. ABS reflects a distributive idea, in the sense that it seeks to establish rights and entitlements in favour of minority and Indigenous groups in the context of CH digitisation. One potential

avenue for establishing robust legal frameworks is the incorporation of ABS principles into the domain of CH digitisation, which might become more likely if spaces of participation exist. However, one does not imply the other, as ABS can potentially be adopted as a matter of top-down decision-making, without requiring the participation of minority and Indigenous groups. Similarly, ABS can arguably exist in parallel to 'Third Space' initiatives, as reciprocal relations may be established outside of ABS. In this context, a more effective approach might involve complementing ABS with both participatory and 'Third Space' approaches, thereby offering multiple layers of voice and rights to minority and Indigenous groups in the digitisation of CH.

Thus, a review of relevant literature indicates that ABS principles, as developed in contexts such as those pertaining to genetic resources and traditional knowledge, can be applied to CH digitisation with a view to ensuring that source communities derive benefit from the use of their heritage. The fundamental elements of ABS can include Prior Informed Consent (PIC), whereby communities have the right to grant or deny consent for the digitisation of their heritage (Xiaodong & Xiurong 2017); Mutually Agreed Terms (MAT), through which communities negotiate terms of access and use of their digitised heritage; Benefit Sharing Agreements, whereby benefits arising from the use of digitised heritage are shared fairly and equitably with source communities (Phillips 2016); and Disclosure Requirements (DRs), which apply in accordance with certain patent application regulations, requiring the disclosure of the source or origin of genetic resources. This concept could be adapted to CH digitisation, requiring institutions to disclose the origin of digitised heritage and demonstrate compliance with ABS agreements (Arezzo 2007, Oguamanam 2008).

Embedded Cultural Practices and Values

The final cluster of governance models identified in our scoping review is what we term Embedded Cultural Practices and Values (Farley 1997, Arezzo 2007, Recht 2008, Oguamanam 2008a, Oguamanam 2008b, Varadarajan 2011, Reddix-Smalls 2014, Blakely 2015, Phillips 2016, Karanja 2016, Karjala & Paterson 2017, Katyal 2017, Prazmowska 2020). This model is grounded in the understanding that CH is not merely a collection of objects, but rather a complex tapestry interwoven with cultural practices, values, and beliefs. It is imperative that digitisation initiatives recognise and respect these embedded elements to prevent misappropriation, ensure ethical representation, and empower source communities.

Unlike the previous models, the idea of embedded cultural practices focuses on the materiality of CH, as it undergoes a transition towards digitisation. Indeed, embeddedness implies an awareness of the interconnectedness of tangible and intangible heritage, recognising that objects often embody cultural stories,

traditional knowledge, and spiritual significance. In this sense, governance models highlighting embeddedness focus on the continuity of the material existence of CH and its digitisation, thereby presenting distinct challenges in terms of representation and voice for minority and Indigenous groups.

It is thus crucial that decision-making processes acknowledge the comprehensive nature of CH, as it frequently encompasses cultural narratives, knowledge, and spiritual significance. For instance, Indigenous communities frequently regard knowledge as an intrinsic part of their cultural identity, and traditional designs and artefacts are not merely commodities, but expressions of deep meaning and social value. Consequently, digitisation should not only prioritise the replication of objects but also consider the cultural contexts and practices that imbue them with significance.

Interim Conclusion

As illustrated by the four clusters identified in our scoping review, when implemented ethically and responsibly, digitisation holds significant potential for supporting the CH of Indigenous and minority communities. To that end, decision-making processes concerning the digitisation of Indigenous and minority CH should involve interested communities as early and extensively as possible. However, as our review has shown, although numerous policy options exist to support inclusive approaches, they are often implemented on an ad-hoc basis and remain at a relatively abstract level. Admittedly, such calls for participation implicitly confer a privileged role on cultural institutions, as the governance models described generally assume institutional control over the cultural artefact to be digitised – a premise that is increasingly being challenged amid growing pressure on these institutions to 'decolonise' their practices and collections (Onciul 2015). While clearly vital for the overall debate on digital CH, this question goes beyond the scope of this article, as it implies a process of redefining the ownership policy applicable to all cultural institution holdings of Indigenous or minority origin, and not only to CH relevant for digitisation. With this scope in mind, we argue that more must be done to put the voice of Indigenous peoples and minorities at the centre of the CH digitisation wave.

In the next section, we suggest that a possible step towards this goal is to adopt a user-centric approach, building on the different models of governance identified above. This can fulfil the potential of digitalisation to empower communities to revitalise their cultural practices and reclaim their narratives.

Honour Authenticity, Promote Trust, and Ensure Benefit-Sharing through ProActive Engagement

The discussion presented in this article, especially the examples of conflicts outlined above in Section 2, highlights a fundamental issue: the lack of engagement and participation of minority and Indigenous communities in the digitisation of their heritage. At the same time, the clusters of best practices of governance identified through the scoping review indicate that involving Indigenous and minority members and other expert representatives of the culture early in the digitisation process is not only central to fostering participation and engagement, but it is also a key tool in ensuring authenticity of digital CH. To increase such proactive engagement and participation of minority and Indigenous communities, whether in relation to the use of AI, 3D printing, or other digital technologies, and thereby honour the authenticity of content, promote trust, and ensure benefit-sharing, proactive user-centred approaches in decision-making, including in the laws and policies that govern them, should be emphasised.

In this regard, user-centric approaches such as legal design (LD) have significant potential to mitigate tensions, for example, between state laws and Indigenous worldviews (Ballardini & Cadillo-Chandler 2025). LD aims to reform law through user-centred design to make the legal system more human-centred, usable, and satisfying (Ballardini et al. 2021). When applied to law and technology, for example, LD recognises the importance of new technologies but does not privilege technology-driven solutions over people's needs and experiences. As such, LD is particularly well suited to initiating "new policy reforms, technology interventions, and service and visual designs that can improve the legal system, through a commitment to a wider participatory public involvement" (Ballardini et al. 2021). In practice, this means involving a wider range of experts specialised in legal and governance processes, i.e. not merely lawyers or policymakers. After thorough research aimed at uncovering the pros and cons of users' experiences during the design process, the testing phase involves running pilots and/or workshops with a large group of stakeholders. The results are then scaled and replicated to become the new standard for how the legal system should work (Ballardini et al. 2021). As Margaret Hagan notes, design thinking allows us to 'put the focus of law on innovating, testing and building systems that serve the agency of the people involved in them' (Hagan n.d.). For example, LD could be particularly useful in supporting the aforementioned governance models with practices that ensure the engagement of minority groups. At its core, LD enables inclusive groups to develop and test new improvements to the system, as well as offering flexible exploratory methods for piloting. This could help address some of the existing gaps in current governance models identified above. However, the question remains: what does LD mean in practice for the governance of minority and Indigenous

digital heritage? Indeed, acknowledging the importance of this approach is only a first step towards building truly participatory, diverse governance models and practices in this context. As such, the approach is as relevant – or as naïve – as its concrete applications.

Examples of uses of LD techniques in governing digital CH of minorities and Indigenous peoples have already emerged. For instance, in the context of the Sámi people, the use of ethical guidelines, co-created closely with Sámi communities, was developed in the Nuohtti service. Nuohtti was developed in the project Digital Access to Sámi Heritage Archives (2018-2021), a multidisciplinary research project integrating user-centred design principles throughout the development process. The purpose of the initiative was to improve accessibility to the digitised Sámi CH. The Nuohtti portal provides an easy and simultaneous way to access information and materials related to Sámi CH from different archives and collections (Nuohtti 2024). Although archive materials were not digitised within the project, Nuohtti facilitates access to already digitised materials. While this type of improved access was considered to mainly offer benefits from the perspective of the Sámi, it also entailed several risks. Indeed, Häkkilä et al (2022: 137) note that "digital access exposes the culturally sensitive material for a wider audience, creating the potential risk of offensive or disrespectful usage, related, for example, to commercial exploitation". To tackle and proactively prevent these possible challenges, the project decided to develop ethical guidelines for the use of the Nuohtti service. The ethical guidelines were drafted by one of the authors, Iiris Tuominen, as part of the project Digital Access to Sámi Heritages Archives (see Tuominen 2025). Although the guidelines were developed in the 'traditional' manner of legal research, based on existing legislation and international examples of ethical guidelines for Indigenous CH, participatory design methods and the review of the guidelines with Sámi community representatives in the project steering group also played a central role (Häkkilä et al 2022: 138). For example, with the first draft of the guidelines, several workshops with the community identified that a majority of users perceived them to be an extensive wall of text. The guidelines were considered unapproachable and, as a result, users did not read them. The guidelines were also seen as resembling privacy notices that users would mainly click through without reading them. Based on these observations, the design goal was that when entering the search service for the first time, the user interface (UI) would guide the user to consider ethical aspects. Through multidisciplinary workshops combining expertise from graphic design, user interface design, technical development, law, and archival studies, the UI was integrated with elements designed to introduce ethical issues in a user-friendly manner. For example, when entering the search service for the first time, the UI would guide the user to consider ethical aspects. A pop-up window with a visualisation would interrupt the first-time search activity

and draw the user's attention to an ethical guideline quiz or towards reading the ethical guidelines at length (Häkkilä et al. 2022: 139).

Another example of user-centric practices, which we argue employs LD techniques, is data stewardship. This is generally understood and described as the collection, digitisation, maintenance, curation, storage, analysis, sharing, use, and reuse of datasets (Open Data Institute 2023). In the specific context of Indigenous data governance, both the stewardship and the processes necessary to implement Indigenous control over Indigenous data are being created (Carroll et al. 2020). In September 2019, the Global Indigenous Data Alliance (GIDA) released the CARE (Collective benefit, Authority to control, Responsibility, Ethics) principles, shaped to guide the involvement of Indigenous peoples in data governance within the current data landscapes (GIDA n.d.). These principles introduce a focus on people and purpose to data governance, complementing the data-centric nature of the FAIR (Findability, Accountability, Interoperability, Reusability) principles (Wilkinson et al. 2016). The objective is for data stewards and researchers to embody both FAIR and CARE principles in their collection, processing, reuse, deployment, and dissemination of Indigenous data. Indeed, the CARE principles support ethical stewardship of Indigenous data. According to the CARE principles *Authority to Control* paragraph A3: "*Indigenous Peoples have the right to develop cultural governance protocols for Indigenous data and be active leaders in the stewardship of, and access to, Indigenous data especially in the context of Indigenous Knowledge*" (Research Data Alliance International Indigenous Data Sovereignty Interest Group 2019). In this context, the role of the data steward is crucial, as they are responsible for ensuring that data remains accurate, accessible, and is used appropriately throughout its lifecycle. The role also includes maintaining and cleaning the data regularly. Data stewards work to establish policies, procedures, and best practices for data management, collaborate with data users and stakeholders, and address any issues or concerns related to data governance, while implementing both FAIR and CARE principles.

In the context of Indigenous digital CH, the secondary use of data, particularly when CH datasets are made available in open formats allowing for their free use, reuse, and exploitation of the datasets for commercial and non-commercial purposes, has proved challenging in many instances. Indeed, data sovereignty and governance of Indigenous CH datasets raise various issues from an ethical perspective. For instance, in the EU context, the current open data movement and the related legislation (e.g. the Open Data Directive) do not fully consider Indigenous peoples' rights and interests in terms of data sovereignty and control over the secondary use of data. As previously mentioned, this approach can conflict with Indigenous perspectives, where certain types of data, such as sacred cultural knowledge, environmental resources, or historical narratives, are not intended for unrestricted public use.

The CARE principles address these challenges by ensuring that open data initiatives integrate Indigenous values and governance models. In the specific context of Sámi datasets related to their CH, the GIDA-Sápmi network (which is connected to the above-mentioned global GIDA network and is composed of Sámi representatives, universities, memory institutions, and archives from Norway, Sweden, and Finland) has further developed the CARE principles to better adapt them to the Nordic Sámi context. The ultimate goal is to make the Nordic research community, and memory and archival institutions, aware of the CARE principles and to "strengthen Sámi data governance and Sámi research data for the needs of contemporary Sámi society" (UiT n.d.).

Moreover, in the context of the Māori group, the Indigenous people of Aotearoa, the Māori Data Sovereignty (MDS) Network (Te Mana Raraunga n.d., Homepage) was established in response to the need to affirm and protect Māori data rights and interests in this rapidly evolving digital and data-driven society. To the Māori, data is not a neutral resource, but a *living taonga* (treasure) that carries *whakapapa* (genealogy), cultural identity, and collective memory. With the global push for open data, *Te Mana Raraunga* calls for a Māori-led data governance model that reflects *tino rangatiratanga* (self-determination), *tikanga* (Māori customary practices, laws, and/or behaviours), and collective well-being.

Specifically, the MDS Network emphasises that data owned, preserved, and maintained by Māori should be under Māori governance, supporting tribal sovereignty and the realisation of Māori aspirations. Te Mana Raraunga seeks to safeguard and protect data for and about the Māori, uphold the quality and integrity of its collection, advocate for Māori involvement in the governance of data repositories and leadership in data stewardship, support the development of secure data infrastructures, and foster the growth of sustainable Māori digital businesses and innovations. Thus, to provide an alternative to the dominant FAIR principles, the MDS Network incorporates and develops the CARE principles, which, as mentioned, emphasise the requirement to prioritise Indigenous peoples' rights and interests in data practices. Accordingly, the MDS Network calls for reconciling open data policies with Indigenous rights, proposing a model of conditional or responsible openness, where data is only made open with Māori consent. In this way, ethical and cultural protocols are respected, the collective benefit is clearly demonstrated, and the Māori retain the right to appropriately govern and restrict data.

Building on these principles, Te Mana Raraunga has developed tools and models to guide institutions and communities (Te Mana Raraunga n.d., Ngā Rauemi). Of these, we highlight two that are most relevant to our research. First, the Māori Data Governance Model was developed in partnership with the New Zealand State in 2021 (Data.govt.nz 2025). The co-design of a Māori Data

Governance Model places strong emphasis on data stewardship, offering a unique opportunity for the New Zealand government to develop a governance approach that genuinely reflects Māori needs, values, and authority over data. Second, the Māori Data Audit Tool helps organisations to assess their readiness to handle Māori data ethically. It includes criteria to evaluate cultural alignment, community involvement, data-sharing agreements, as well as risk mitigation strategies (Māori Data Audit Tool 2017). This approach redefines openness, not as an absolute, but rather as contextual, negotiable, and relational. It invites governments, researchers, and technologists to reconsider their assumptions and engage in genuine partnership with Indigenous peoples.

In a sense, the Nuhotti ethical guidelines and the role of (Indigenous) data stewardship in the GIDA-Sápmi network and the Māori Data Sovereignty Network exemplify contemporary applications of design thinking and user-centricity techniques – such as LD – in governance models. These approaches can contribute to building trust in the use of AI and digitisation more broadly, particularly in relation to the digital CH of minorities and Indigenous peoples. To be sure, the Sámi example reflects a particular context in which an Indigenous group enjoys constitutional protection of their identity, representation, and political participation (Niemivuo 2015). In this sense, decision-making processes related to CH digitisation are embedded within a broader framework of human rights protection, shaping the conditions under which minority and Indigenous groups can meaningfully participate. Notwithstanding this limitation, these types of practices illustrate how the existing governance models highlighted in our scoping review could be enhanced through a more deliberate integration of user-centric approaches such as LD. For instance, it could be argued that had one of the governance models outlined above been integrated with LD techniques in the Sinaida case, the incident in question would have been prevented. Indeed, given the complexity of the issue highlighted in this article, it would be unrealistic to expect a bulletproof solution. Yet, it is clear that engagement and cooperation are not only important in this context but are also key elements in enabling a peaceful reconciliation between legal rules, such as IPR and human rights, and ethical principles, such as those rooted in minority and Indigenous worldviews. This is essential for securing more respectful and participatory digitisation practices in governance models.

Conclusion

The digitisation of CH for minorities and Indigenous peoples presents both profound opportunities and significant challenges. It offers a platform for preserving and promoting cultural resilience, ensuring that traditions and identities are documented and accessible to future generations. Digital tools such

as AI, 3D printing, and other technologies expand the possibilities for engagement and co-creation, empowering marginalised communities to renew their cultural practices. These technologies also facilitate greater understanding among diverse stakeholders at local and global levels, advancing cultural inclusion and mutual respect. However, this promise is accompanied by substantial risks. The integration of advanced technologies into CH projects often raises ethical concerns, particularly around IPR, equitable representation, and authenticity. The historical imbalance of power, rooted in colonial practices, continues to influence how CH is digitised and controlled. As demonstrated by cases such as the unauthorised use of Sámi cultural imagery in commercial products, digitisation without community involvement can lead to exploitation and alienation rather than empowerment. The ethical application of AI and other digital tools in CH digitisation is critical to addressing issues of bias, misuse, and authenticity.

Such dynamics of CH digitisation become particularly relevant in the context of generative AI. Indeed, generative AI might be trained on data that includes digitised Indigenous and minority CH. Moreover, it could generate synthetic content that may be perceived as representing Indigenous CH, thereby creating a process of distorted cultural narratives (Ghosh et al. 2024, Worrell & Johns 2024). Thus, CH digitisation governance models are crucially important in understanding certain risks and promises of generative AI with regard to Indigenous and minority rights. Effective governance frameworks must ensure that such technologies are applied transparently and respectfully, safeguarding the cultural integrity of minority and Indigenous groups.

To address these challenges, this article has identified four key governance models based on scoping review results for improving minority participation in CH digitisation. Each model underscores the need for participatory frameworks that honour authenticity, foster trust, and ensure benefit-sharing. Together, they form a cohesive approach to overcoming the risks posed by digitisation while maximising its potential for empowerment. Yet, these existing models lack a coherent and holistic perspective and concrete practices to achieve the goal. In this regard, this article argues that practices based on proactive, user-centric approaches provide a pathway for addressing these complex challenges. LD, for instance, offers a framework for integrating user-centred principles into governance, legislative, and policy processes. By involving diverse stakeholders – legal experts, technologists, and community representatives – LD fosters inclusive solutions. Ethical guidelines, such as those developed for the Sámi Nuohtti project, along with the role of (Indigenous) data stewardship in the GIDA-Sápmi network and the Māori Data Sovereignty Network, exemplify how collaborative processes in the digitisation of minority and Indigenous heritage can anticipate and mitigate risks while enhancing trust and engagement. Ultimately, the success of digitisation lies in prioritising the voices of minority and

Indigenous communities. This requires moving beyond fragmented policy measures to establish comprehensive participatory governance frameworks supported by user-centric practices. By ensuring that communities are involved from the earliest stages of decision-making, digitisation can become a tool for empowerment, allowing communities to reclaim their narratives and revitalise their cultural practices. Moreover, as institutions adopt more ethical, inclusive, and transparent practices, digitisation has the potential to transform CH into a bridge between diverse histories, fostering understanding and reconciliation across societies.

Declaration of AI Use

The AI tool NotebookLM was used to support the synthesis of literature and the identification of patterns during the scoping review. All outputs were critically reviewed, refined, and validated by the research team/authors.

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