

Documentary Film as Knowledge Management: How AI Enables the Preservation and Reconstruction of Collective Memory

Evi Rosfiantika ^{1*}, Merryam Agustine²

¹ Universitas Padjadjaran, ²Universitas Widyatama

Emails: evi.rosfiantika@unpad.ac.id, merryam.agustine@widyatama.ac.id

*Corresponding author: evi.rosfiantika@unpad.ac.id

Received August 2, 2026; Revised August 18, 2026; Accepted September 2, 2026

Abstract

This paper examines documentary film as a dynamic knowledge management (KM) system, interrogating how artificial intelligence (AI) technologies mediate the preservation, organization, and reconstruction of collective memory. The central research question asks: in what ways does AI function as an enabler within documentary production to transform fragmented social memories into structured, accessible, and enduring collective knowledge? Drawing on a conceptual framework that synthesizes KM theory with media studies and collective memory scholarship, this study employs a qualitative approach research study based on a systematic literature review and framework analysis, mapping the documentary production process against four core KM stages which are knowledge creation, organization, storage, and dissemination. The analysis suggests that AI can enhance the efficiency, accuracy, and scalability of each stage, producing four distinct knowledge outputs: preserved collective memory, reconstructed fragmented memory, an informed citizenry, and historical accountability. The framework further identifies five critical ethical dimensions namely algorithmic bias, representation and power relations, digital access inequity, data privacy, and authenticity, that must be addressed to ensure responsible implementation. This paper contributes theoretically by repositioning documentary film not merely as a communicative artefact but as an AI-augmented knowledge management instrument capable of sustaining inclusive and accurate collective memory across generations.

Keywords: documentary film, knowledge management, artificial intelligence, collective memory, digital preservation

INTRODUCTION

In an era defined by unprecedented information abundance, societies face a profound paradox: the more content is produced and circulated, the more fragile collective memory becomes (Constable et al., 2025). Collective memory, understood as the shared reservoir of past experiences, values, and narratives that binds communities together, is increasingly subject to distortion, fragmentation, and erasure within the digital environment (Heersmink, 2023; Lopez et al., 2025). As Mandolessi (2023) argues in her study of the digital turn in memory studies, digital media practices, far from democratizing historical consciousness, often produce a radical dispersion and fragmentation of collective memory, driven by the algorithm-mediated circulation of social media content.

Against this backdrop, documentary film has long occupied a unique position as a medium capable of preserving and transmitting social memory across generations. Kortti (2022) demonstrates that history documentaries play a central role in mediating historical culture and memory, particularly in transmitting collective memories to generations who did not directly experience the original events. Filmmakers thus bear a distinctive responsibility for mediating how societies recall and make sense of their shared past, given their privileged position in shaping public historical consciousness (Bujgoi, 2025). Recent research provides evidence that AI is increasingly being applied across several stages of documentary and archival practice, including archival search, automated transcription, metadata enrichment, and digital restoration (Colavizza et al., 2021; Harisanty et al., 2024; Niu, 2026). In current media practice, these applications include automated footage search, editing support, visual effects, virtual production, dubbing, localization, and audience analysis.

Despite the growing significance of both documentary film as a medium of memory and AI as a production technology, scholarship at their intersection remains sparse and fragmented. Existing literature tends to approach documentary film primarily through the lens of representation theory and media ethics, while knowledge management (KM) research has focused predominantly on organizational and corporate contexts (Nonaka & Takeuchi, 1995). The theoretical potential of applying KM frameworks to understand documentary film as a systemic process of knowledge creation, organization, storage, and dissemination has yet to be fully explored. Furthermore, while recent industry discourse has begun grappling with the ethical implications of AI in documentary practice, most notably through the Archival Producers Alliance (2024) and emerging academic commentary (Porlezza & Schapals, 2024), these contributions remain largely normative and practitioner-oriented. A systematic theoretical framework conceptualizing AI's mediating role within the broader knowledge management processes of documentary film is conspicuously absent from the academic literature. Without such a framework, practitioners and policymakers lack the analytical tools needed to evaluate how AI technologies alter the conditions under which collective memory is produced and transmitted.

This paper is therefore guided by the following central research question: in what ways does artificial intelligence function as an enabler within documentary film production to transform fragmented social memories into structured, accessible, and enduring collective knowledge? This question is operationalized through three subsidiary inquiries: (1) how AI technologies mediate the four core KM processes within the documentary production pipeline; (2) what forms of knowledge output AI-enabled documentary practice produces, and how these outputs contribute to collective memory; and (3) what ethical considerations constrain and shape the responsible deployment of AI in this domain.

The literature base comprises peer-reviewed academic journals, book chapters, and credible industry reports published primarily between 2015 and 2025, with foundational theoretical works included regardless of publication date. Key databases consulted include Scopus, Web of Science, and Google Scholar, using search terms combining 'documentary film,' 'collective memory,' 'knowledge management,' 'artificial intelligence,' 'archival preservation,' and 'media ethics.' To ensure currency and practical relevance, the review was supplemented with industry documents, including the APA Guidelines (2023) and UNESCO recommendations on AI and documentary heritage. The analytical procedure follows three steps. First, conceptual mapping identifies key constructs, relationships, and propositions across the three bodies of literature. Second, cross-literature synthesis identifies points of convergence, divergence, and productive tension between KM theory, collective memory scholarship, and AI in media studies. Third, framework construction integrates these syntheses into the INPUT-MEDIATION-PROCESS-OUTPUT model, which is then illustrated through exemplary cases drawn from recent documentary practice.

Literature Review

Collective Memory Theory

The theoretical starting point of this paper is the concept of collective memory, first systematically developed by Maurice Halbwachs (1992 [1925]). Halbwachs's central claim that memory is fundamentally social rather than purely individual, reframes remembering as a process that occurs within group frameworks, shaped continuously by the needs and perspectives of the present rather than fixed at the moment of the original event. Assmann and Czaplicka (1995) sharpen this framework by distinguishing communicative memory, sustained through everyday interaction within living generations, from cultural memory, which is stabilized and transmitted across longer timescales through symbolic texts, rituals, and media. Read together, these two contributions do more than define memory as social; they identify the precise mechanism by which memory must eventually be externalized into durable form if it is to survive beyond the generation that lived it. Documentary film sits exactly at this transition point, converting living testimony, still communicative, still fragile, into a fixed cultural artifact.

Subsequent scholarship has extended this foundation in two directions relevant to the present study. Bondebjerg (2022) demonstrates the transgenerational function of

documentary specifically, showing that documentary film transmits mediated memory to audiences who never experienced the depicted events directly, effectively performing the communicative-to-cultural conversion that Halbwachs and Assmann describe in the abstract. Heux et al. (2023), meanwhile, add a cognitive dimension largely absent from the sociological tradition, showing that collective memory also structures individual autobiographical retrieval, making it a genuinely interdisciplinary phenomenon that spans sociology, history, and cognitive psychology. Taken together, this body of work establishes documentary film as more than a passive record: it is simultaneously a social memory carrier and a cognitive framing device, a dual function that later sections of this paper will argue is precisely what AI-mediated production risks altering.

Knowledge Management Framework

If collective memory theory explains what documentary film preserves, knowledge management (KM) theory offers the analytical vocabulary for how that preservation is structurally accomplished. Nonaka & Takeuchi (1995) SECI model, Socialization, Externalization, Combination, Internalization, conceptualizes knowledge creation as a continuous spiral in which tacit and explicit knowledge convert into one another across individual, group, and organizational levels (Farnese et al., 2019). Although developed within Japanese manufacturing organizations, the model's underlying logic, that knowledge must move from lived, unarticulated experience toward codified, shareable form before it can be institutionally retained, generalizes well beyond its original industrial setting.

Farnese et al., (2019) complement the SECI model at a more operational level, focusing on the practical mechanics of knowledge capture, transfer, and use, and emphasizing the role of repositories and information architectures in sustaining organizational memory. An important structural parallel emerges: the SECI spiral and the communicative-to-cultural memory transition describe the same underlying movement, from tacit, socially embedded experience to stable, explicit, transmissible knowledge, using two entirely different theoretical vocabularies developed in two unconnected fields (Assmann, 2011). This paper treats that parallel as the conceptual hinge that allows documentary film to be legitimately analyzed as a knowledge management system: raw social memory (tacit knowledge) is captured, processed and narratively externalized, combined and stored in archives, and disseminated to audiences where it is internalized as shared cultural knowledge.

Relationship among the Conceptual Layers. The three conceptual elements in this framework operate at different analytical levels. The four KM stages—knowledge creation, organization, storage, and dissemination—describe the functional workflow through which documentary knowledge is managed. The SECI model provides the knowledge-conversion logic within this workflow by explaining how tacit and explicit knowledge are transformed through socialization, externalization, combination, and internalization. Meanwhile, the INPUT–MEDIATION–PROCESS–OUTPUT framework provides the overarching systems structure that connects documentary resources

entering the system, the mediating role of AI, the KM processes, and the resulting knowledge outputs. Thus, SECI explains how knowledge is converted, the four KM stages explain what knowledge-management functions are performed, and the INPUT–MEDIATION–PROCESS–OUTPUT framework explains how these elements are organized as an integrated documentary knowledge-management system.

Documentary Film as a Medium of Memory

Documentary film's privileged position in the media ecology of memory rests on a combination that neither academic history nor conventional journalism fully replicates: factual authority paired with emotional and narrative engagement (Fan, 2025). Kortti (2022) frames documentary as an instrument of mediated historical culture, capable of presenting contested and trans-generational narratives of the past to mass audiences in ways that shape public historical consciousness far more broadly than specialist historiography. This capacity, however, is not fixed; it has evolved historically alongside available technology. Roselló (2021) traces three distinct representational moments, wartime propaganda, reflexive non-fiction, and web documentary, each employing different visual strategies for constructing the past in response to the technological and institutional conditions of its time.

This historicization matters for the present argument because it repositions AI-enabled documentary production not as an unprecedented rupture but as the latest instance of a recurring pattern: documentary practice has always adapted its representational strategies as new technologies become available. What distinguishes the current moment, as the following section argues, is the scale and autonomy with which AI systems now participate in that adaptation, shifting from tools that record memory to systems that can also generate, complete, and structure it.

Artificial Intelligence in Media Production

The application of AI to media and archival production has accelerated markedly over the past decade. Colavizza et al., (2021), in their seminal overview published in the *ACM Journal on Computing and Cultural Heritage*, survey recent developments at the intersection of AI and archival practice, identifying four broad themes: theoretical and professional considerations, the automation of recordkeeping processes, organizing and accessing archives, and novel forms of digital archives. Their analysis documents how the digital transformation is turning archives, both old and new, into data, and how automation in the form of artificial intelligence techniques is increasingly applied both to scale traditional recordkeeping activities and to experiment with novel ways to capture, organize, and access records.

Harisanty et al., (2024) bibliometric analysis of 718 studies documents exponential growth in AI applications for cultural heritage preservation, clustering primarily around digitization, metadata enrichment, and predictive restoration. Within this broader trend, natural language processing has enabled automated transcription and translation of oral

histories at a scale unattainable through manual archival labor, while deep learning models have been applied to colorization and temporal interpolation of degraded archival footage (Glick, 2024), directly extending the KM function of knowledge organization into technical practice.

Synthesis of Literature

Table 1 synthesizes the four bodies of literature reviewed above, mapping each to its core theoretical contribution and its limitation relative to the present study's aims.

Table 1. Comparative Synthesis of Literature Review

Body of Literature	Key Authors	Core Contribution	Limitation / Gap
Collective Memory Theory	Halbwachs (1992); Assmann & Czaplicka (1995); Bondebjerg (2022); Heux et al. (2023)	Establishes memory as socially constructed and shows how communicative memory is transmitted into durable cultural memory across generations	Analyzes documentary as a memory vehicle but lacks a systematic vocabulary for describing the internal processes by which that vehicle produces, organizes, and stores knowledge
Knowledge Management Framework	Nonaka & Takeuchi (1995); Farnese et al. (2019); Davenport & Prusak (2000)	Provides the SECI model and practical KM processes (capture, transfer, storage, use) for how tacit knowledge becomes explicit, shareable knowledge	Developed for organizational/corporate contexts; rarely extended to media production or documentary film specifically
Documentary Film as Memory Medium	Bondebjerg (2022); Erll (2011); Arnau Rosello (2021)	Shows documentary's historically evolving representational strategies and its unique combination of factual authority and emotional engagement	Historicizes documentary's technological adaptation but does not theorize the current AI-driven shift in structural (KM) terms
AI in Media Production	(Colavizza et al., 2021); (Harisanty et al., 2024); Glick (2024); APA (2023); (Jaillant & Rees, 2023)	Documents rapid growth of AI applications in archival/heritage work and raises ethical concerns about authenticity and trust	Rich technical detail, but not grounded in either KM theory or collective memory scholarship, leaving ethical debates theoretically under-anchored

These four bodies of scholarship, a pattern of partial overlap, but no genuine integration, becomes visible. While communication theory explains how documentary films construct and communicate meanings to audiences, a Knowledge Management perspective complements this view by examining how documentary production captures,

organizes, stores, and disseminates knowledge from fragmented social memories. Thus, KM is not proposed as a replacement for Communication Theory, but as an analytical lens for understanding the knowledge processes underlying documentary production. Media and memory scholars provide a rich historical account of documentary's evolving representational strategies but stop short of theorizing the current AI-driven shift in structural, rather than merely descriptive, terms. And AI-in-media researchers examine technical applications in granular detail, yet ground their analyses in neither KM theory nor collective memory scholarship, leaving the ethical debates they raise, over authenticity, trust, and authority, theoretically under-anchored.

The result is a triple gap rather than a single missing study: no existing framework treats AI-enabled documentary film simultaneously as (a) a collective memory medium, (b) a structured knowledge management process, and (c) a site of specific technological mediation with its own epistemic risks. This paper's contribution is to close that triple gap by constructing an integrated conceptual framework that treats AI-enabled documentary film as a knowledge management system for collective memory.

METHODOLOGY

This paper employs a qualitative conceptual research design, combining a systematic literature review with framework analysis (Merriam & Tisdell, 2015). Conceptual research is appropriate when the primary aim is to develop or refine theoretical frameworks rather than test empirical hypotheses, and when the field under examination lacks established integrative models (Heinonen & Gruen, 2024). The documentary film-as-KM framework presented here is developed through a two-stage process: first, mapping existing theoretical concepts across the relevant literatures; second, constructing an integrative model that resolves identified theoretical gaps.

The literature base comprises peer-reviewed academic journals, book chapters, and credible industry reports published primarily between 2015 and 2025, with foundational theoretical works included regardless of publication date. Key databases consulted include Scopus, Web of Science, ACM Digital Library, and Google Scholar, using search terms combining 'documentary film,' 'collective memory,' 'knowledge management,' 'artificial intelligence,' 'archival preservation,' 'digital heritage,' and 'media ethics.' To ensure currency and practical relevance, the review was supplemented with industry documents, including the APA Guidelines (2023), UNESCO recommendations on AI and culture (2025).

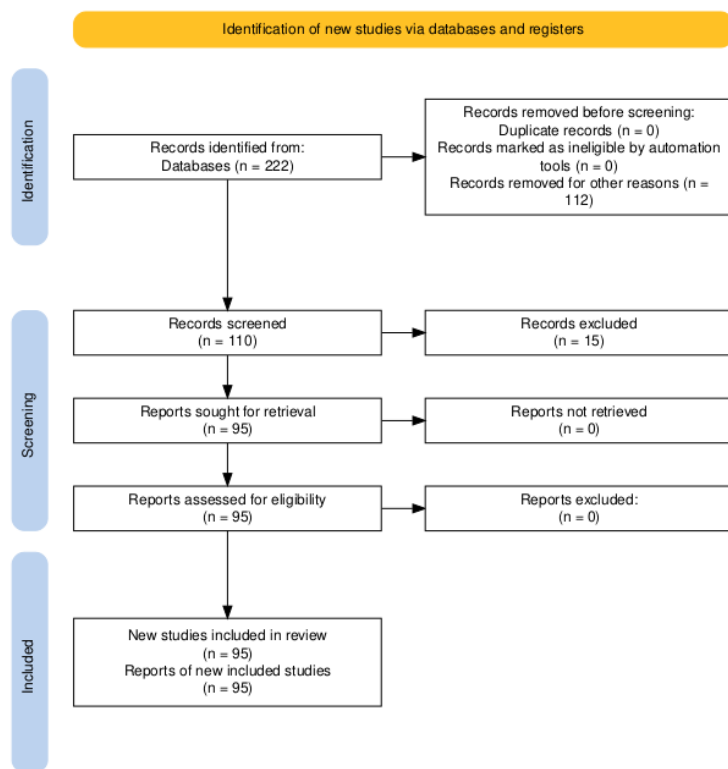


Figure 1. PRISMA Flow Diagram

Source: (Haddaway, Page, Pritchard, & McGuinness, 2022)

The PRISMA flow shows that 222 records were identified through Scopus, 110 remained after applying the year and language filters, 15 were excluded during screening, and 95 studies were included in the final review. The analytical procedure follows three steps. First, conceptual mapping identifies key constructs, relationships, and propositions across the three bodies of literature. Second, cross-literature synthesis identifies points of convergence, divergence, and productive tension between KM theory, collective memory scholarship, and AI in media studies. Third, framework construction integrates these syntheses into the INPUT-MEDIATION-PROCESS-OUTPUT model, which is then illustrated through exemplary cases drawn from recent documentary practice and contextualized using relevant institutional literature.

RESULTS AND DISCUSSION

AI as Enabler of Knowledge Management in Documentary Film

The analysis suggests that AI can function as a systemic enabler across all four stages of documentary knowledge management, rather than merely as a production tool for specific tasks. At the knowledge creation stage, AI enables filmmakers to generate novel insights from the intersection of heterogeneous datasets, oral histories, archival footage, spatial data, and digital traces that may be difficult to synthesize through manual research. The application of NLP to large corpora of testimonial data, for instance, allows

documentarians to identify thematic patterns, contested narratives, and underrepresented voices at a scale and depth unavailable to individual researchers (Harisanty et al., 2024).

The scale of this transformation is quantifiable. OpenAI's Whisper ASR system, trained on 680,000 hours of audio data across 99 languages, achieves word error rates (WER) of 2.7% on clean English audio (LibriSpeech test-clean) and approaches human-level transcription accuracy (Radford et al., 2022). For documentary filmmakers working with oral history archives, this represents a transformational capability: what previously required hundreds of hours of manual transcription labor can now be accomplished in minutes, with accuracy rates exceeding 95% for high-quality recordings (Novascribe, 2026). The Yle Finnish Broadcasting Company, in its systematic implementation of AI across media archives, reports that speech-to-text and translation tools have become standard production infrastructure, with AI-assisted transcription enabling the processing of archive material at a scale that would be impossible through manual labor alone (Saarikoski, 2024).

At the knowledge organization stage, AI-powered metadata systems and classification algorithms enable the structuring of archival collections into coherent, searchable knowledge architectures. Jaillant & Rees (2023) document how AI is being applied to digital humanities archives to create dynamic, interconnected knowledge repositories that transform static collections into living research environments. Ali et al. (2023), in their work on historical newspaper metadata enrichment published in the *Journal of Documentation*, demonstrate how computer vision and machine learning approaches enable automated extraction of authorship, publication dates, and categorization, improving indexing and retrieval capabilities in extensive archives. This organizational function is critical for documentary knowledge management because the accessibility of memory depends not only on its preservation but on its navigability.

The knowledge storage function is perhaps where AI's contribution is most technically profound. Deep learning-based film restoration algorithms, including the DeepRemaster system documented by Glick (2024), are capable of reconstructing degraded footage, interpolating missing frames, and restoring color information from monochrome originals, dramatically extending the lifespan of archival materials. The CVPR 2025 proceedings include state-of-the-art methods achieving over 0.9 dB PSNR improvement and 46% enhancement in perceptual quality metrics compared to competing methods (Mao et al., 2025). AI-powered video compression and format migration tools further ensure that documentary knowledge survives technological obsolescence, a persistent threat to digital archives that the Library of Congress identifies as requiring 3-5 petabytes of digitization capacity annually (Library of Congress, 2023).

At the knowledge dissemination stage, AI enables personalized, multilingual, and multi-format distribution of documentary content across global platforms. Automated subtitle generation achieves 85-95% accuracy under optimal conditions and reduces production costs by 75-90% compared to manual transcription services (AssemblyAI,

2025). Real-time translation and adaptive content recommendation algorithms reduce barriers to access, allowing documentary knowledge to reach audiences who would previously have been excluded by language or economic constraints. Netflix, with over 301 million global subscribers as of late 2024, employs AI-driven personalization to deliver documentary content to diverse audiences, with the platform reporting 95.19 billion hours of viewing in the first half of 2024 alone (Netflix, 2024).

The case of Gary Hustwit's *Eno* (2024), in which generative software produces a unique version of the film at each screening from approximately 500 hours of archival footage and 30 hours of interviews, illustrates the frontier of AI-enabled dissemination. The *Brain One* software, developed over five years, generates 52 quintillion possible permutations, representing a form of dynamic knowledge delivery that responds to audience context in real time (Hustwit, 2024). While the filmmakers emphasize that *Brain One* is a generative system rather than generative AI in the conventional sense, the case nonetheless demonstrates how algorithmic mediation can transform documentary from a fixed cultural artifact into a living, adaptive knowledge system.

Impact on Collective Memory

The four knowledge outputs generated by AI-enabled documentary management collectively produce a range of significant impacts on collective memory. The strengthening of cultural identity is perhaps the most immediate social impact: documentary films that preserve and reconstruct marginalized or endangered community memories contribute to cultural continuity and self-recognition, particularly for communities whose histories have been systematically excluded from dominant national narratives. The Europeana digital platform, aggregating over 60 million digital objects from more than 3,500 providers across Europe, demonstrates the institutional scale at which AI-enhanced documentary and archival preservation can operate (Europeana Foundation, 2024).

The promotion of social cohesion constitutes a second significant impact. Documentary knowledge outputs that present plural perspectives on contested historical events can foster empathy and mutual understanding across social divisions. The ethical use of deepfake technology in *Welcome to Chechnya* (2020) and *Another Body* (2023), cited by Jaillant and Cizek (2024), illustrates how AI-mediated documentary can protect vulnerable subjects while preserving the human truth of their testimonies, balancing identity protection with memory preservation. *Another Body*, which won the Special Jury Award for Innovation in Storytelling at SXSW 2023, deepfaked subjects to protect their identities while preserving their emotions, demonstrating how AI can serve documentary ethics rather than undermine it (Compton & Hamlyn, 2023).

The prevention of historical forgetting is a third critical function, particularly salient in an era of digital fragmentation. As Yasseri et al., (2022) document, collective memory in the digital age is subject to systematic erasure, not only through authoritarian censorship but through the structural biases of digital infrastructure, which tends to

preserve the records of technologically advanced societies while allowing those of less-digitized regions to disappear. The UNESCO CULTAI-M25 Report (2025) identifies this as one of three converging crises, alongside technological acceleration and escalating ethical risks, that necessitate a paradigm shift in cultural governance. AI-enabled documentary production offers a partial corrective, by enabling the digitization and restoration of previously inaccessible archival materials.

Ethical Considerations

The framework identifies five ethical dimensions that require systematic attention in the deployment of AI for documentary knowledge management. Each represents a tension between AI's technical capabilities and the values that underpin documentary film's social function.

Algorithmic Bias

Algorithmic bias poses a fundamental threat to the integrity of AI-mediated memory work. As the APA (2023) guidelines warn, most AI models are trained on incomplete versions of the historical record, reflecting the systematic under-digitization of archival materials from the Global South, colonized communities, and marginalized populations. Foka and Griffin (2024), in their analysis published in *Heritage*, demonstrate that bias is inherent in cultural heritage collections and their digital versions, and that AI pipelines may amplify this bias. They argue that effective AI methods require vast, well-annotated datasets with structured metadata, which cultural heritage collections often lack due to diverse digitization practices and limited interconnectivity. This means that AI systems applied to documentary research will tend to reproduce and amplify existing memory hierarchies, privileging already well-documented histories while further marginalizing those that are poorly represented in digital archives.

The empirical evidence for this bias is substantial. Graham and Roll (2024), in their evaluation of OpenAI's Whisper across diverse accents, found superior recognition in American compared to British and Australian English accents, with native English accents demonstrating higher accuracy than non-native ones. For documentary filmmakers working with oral histories from non-native speakers or underrepresented dialect communities, this performance disparity directly affects whose memories get accurately preserved and whose get systematically distorted. Porlezza and Schapals (2024) note that the opacity of AI algorithms impedes accountability mechanisms, making it difficult to identify and correct such biases once they have been embedded in documentary narratives.

Representation and Power Relations

Representation and power relations are implicated in every decision about which memories are preserved, how they are framed, and whose voices are foregrounded. The automated narrative generation capabilities of generative AI raise particular concerns, as

they can produce plausible but historically inaccurate framings that may be difficult for audiences to distinguish from authentic testimonial content (APA, 2023). The UNESCO CULTAI-M25 Report (2025) emphasizes that generative AI transcends mere replication; it actively reinterprets and recomposes cultural expressions, demanding urgent, coordinated global and local actions to ensure it enriches rather than erodes human diversity. Documentary filmmakers have an ethical obligation to exercise critical oversight of AI-generated narrative content, ensuring that AI functions as a research and production tool rather than as an autonomous narrator.

Digital Access Inequity

Addressing this inequity requires both technical capacity-building and institutional frameworks for knowledge sharing across the global documentary community. The UNESCO (2025) recommends building sovereign infrastructure, supporting public computational resources, open-source alternatives, and South-South partnerships to reduce dependency on technologically dominant regions.

Data Privacy and Consent

Data privacy and consent raise urgent questions about the permissible uses of personal testimonies, biometric data, and private communications collected through AI-powered research tools. Documentary subjects have historically enjoyed limited legal protections against the use of their testimonies or images in ways they did not explicitly authorize, and the scale and speed of AI-enabled data collection significantly amplify this vulnerability. Lemieux et al., (2025) propose Web3 solutions for maintaining data sovereignty while enabling AI access. The principles of informed consent and data sovereignty must be embedded in the ethical frameworks governing AI-enabled documentary production.

Authenticity and Truthfulness

Authenticity and truthfulness are foundational values of documentary practice that are placed under particular strain by the generative capabilities of AI. The Archival Producers Alliance (2024) warns that 'generated material presented as real in one film will be passed along, on the internet, in other films, and is in danger of forever muddying the historical record.' Maintaining a clear distinction between AI-restored archival materials and AI-generated synthetic content is essential to the epistemic integrity of documentary knowledge management. The UNESCO Recommendation on the Ethics of AI (2021), the first and only global normative instrument on AI that explicitly includes culture as a specific domain, mandates radical transparency in algorithmic processes and disclosure of training data sources to safeguard against this epistemic erosion.

Theoretical Contributions and Implications

Repositioning Documentary Film as a Knowledge Management System

This paper's primary theoretical contribution is the reconceptualization of documentary film as a knowledge management system, rather than merely a communicative or representational artifact. This repositioning has several significant implications. First, it provides documentary studies with a new analytical vocabulary, drawn from KM theory, for understanding the structural and processual dimensions of documentary production. Concepts such as knowledge creation, codification, storage, and dissemination enable more precise analyses of how documentary films transform social memories into public knowledge, and of where this transformation process is vulnerable to distortion, loss, or capture.

Second, the framework extends the application of KM theory to documentary production while complementing existing communication and media perspectives. Communication theories explain how documentaries construct, mediate, and communicate meanings to audiences, whereas the KM perspective developed in this study focuses on the processes through which social memory is captured, externalized, organized, stored, and transformed into accessible knowledge. Within this framework, documentary production can be understood as a knowledge conversion process: social memory is socialized through community engagement, externalized through archival research and filming, combined through editing and narrative construction, and internalized by audiences through viewing. AI technologies further mediate these processes by accelerating the identification, organization, reconstruction, and dissemination of documentary knowledge. This perspective therefore adds an analytical layer for examining how AI influences what forms of memory and knowledge are captured, how they are organized and reconstructed, and how they become accessible for audience meaning-making, rather than replacing existing theories of documentary communication.

Implications for Policy and Practice

The framework developed in this paper has several practical implications. For documentary practitioners, it provides a systematic model for evaluating the ethical dimensions of AI tool adoption at each stage of the production process, enabling more principled decisions about when AI deployment serves the documentary's knowledge management mission and when it risks undermining it. For archival institutions and cultural policymakers, the framework highlights the systemic nature of AI-enabled memory management, underscoring the need for coordinated infrastructure investment, capacity building, and ethical standards that address the entire knowledge pipeline rather than individual tools or techniques.

For the academic community, the framework identifies several productive directions for empirical research, including comparative studies of AI-enabled versus traditional documentary production processes, audience research on the reception of AI-

reconstructed historical content, and institutional analyses of how archival standards and professional norms are adapting to the challenges and opportunities of AI. These empirical investigations would provide the evidentiary grounding that this conceptual paper does not aspire to offer, testing and refining the theoretical propositions developed here.

CONCLUSION

This paper has argued that documentary film, when understood as a knowledge management system mediated by artificial intelligence, can contribute to the preservation and reconstruction of collective memory. By applying the KM framework of Nonaka & Takeuchi (1995) to the documentary production pipeline, and by analyzing AI's mediating role across four knowledge management stages, creation, organization, storage, and dissemination, the paper suggests that AI may enhance the scalability, efficiency, and accessibility of documentary-based memory management, although the extent of these benefits requires empirical validation across different production and institutional contexts.

The framework further identifies five ethical dimensions, algorithmic bias, representation and power, digital access inequity, data privacy, and authenticity that constrain and shape the responsible deployment of AI in this domain. These ethical dimensions are not peripheral concerns but constitutive features of the documentary knowledge management system: their management is as central to the integrity of the enterprise as the technical capabilities that make AI-enabled production possible. The guiding principle must be that documentary film's ultimate obligation is to the communities whose memories it preserves, to inclusive, accurate, and sustainable collective memory across generations.

This study is subject to several limitations. As a conceptual paper, it does not test empirical claims through systematic data collection, and its illustrative cases are necessarily selective rather than representative. Future research should empirically investigate how AI tools are being integrated into documentary production workflows across different regional and institutional contexts, with particular attention to the Global South where the stakes of memory preservation are greatest and the ethical risks most acute. Longitudinal audience studies examining how AI-mediated documentary content shapes collective memory over time would also significantly advance the field.

In conclusion, as AI technologies continue to transform every dimension of media production, the documentary film community faces both an extraordinary opportunity and a profound responsibility: to harness AI's capabilities in service of the most fundamental of human cultural needs, the collective capacity to remember who we are, where we have come from, and what we owe to one another across the generations.

Generative AI Disclosure Statement

During the preparation and revision of this manuscript, the authors used generative artificial intelligence tools to assist with language refinement, editorial revision, and conceptual discussion. These tools were used as supplementary writing and editorial aids and did not replace the authors' substantive intellectual contributions, including the formulation of the research problem, theoretical positioning, interpretation and synthesis of the literature, development of the conceptual framework, analysis, and conclusions. The authors critically reviewed and verified all AI-assisted outputs and remain fully responsible for the manuscript's arguments, interpretation of sources, theoretical positioning, conclusions, accuracy, originality, and overall integrity.

REFERENCES

- Archival Producers Alliance. (2024). *Best practices for use of generative AI in documentaries*. Retrieved from <https://ethicsandjournalism.org/2024/10/11/archival-producers-alliance-best-practices-for-use-of-generative-ai-in-documentaries/>
- Assmann, J. (2011). Communicative and Cultural Memory. In: Meusburger, P., Heffernan, M., Wunder, E. (eds) *Cultural Memories. Knowledge and Space*, vol 4. Springer. https://doi.org/10.1007/978-90-481-8945-8_2
- Bujgoi, M. (2025). Film as a reflection of society: Analyzing social issues through cinema. *Arts and Social Sciences Journal*, 16(01), 645. <https://doi.org/10.37421/21516200.2025.16.645>
- Colavizza, G., Blanke, T., Jeurgens, C., & Noordegraaf, J. (2021). Archives and AI: An Overview of Current Debates and Future Perspectives. *Journal on Computing and Cultural Heritage*, 15(1), 1 - 15. <https://doi.org/10.1145/3479010>
- Constable, M. D., Rajsic, J., Renner, E., & Taylor, L. J. (2025). The paradox of information abundance: Answers provided by popular information-seeking tools lead to differences in trust, memorability and desire for more information. *Telematics and Informatics*, 101, 102311. <https://doi.org/10.1016/j.tele.2025.102311>
- Fan, W. (2025). Remediated memory, digital witnessing and engagement: A qualitative analysis of the interactive documentary 'The Space We Hold.' *Global Media and China*, 10(1), 94–111. <https://doi.org/10.1177/20594364241236909>
- Farnese, M. L., Barbieri, B., Chirumbolo, A. & Patriotta, G. (2019) Managing Knowledge in Organizations: A Nonaka's SECI Model Operationalization. *Frontiers in Psychology*, 10:2730. doi: 10.3389/fpsyg.2019.02730
- Haddaway, N. R., Page, M. J., Pritchard, C. C., & McGuinness, L. A. (2022). PRISMA2020 : An R package and Shiny app for producing PRISMA 2020-compliant flow diagrams, with interactivity for optimised digital transparency and Open Synthesis. *Campbell Systematic Reviews*, 18(2). <https://doi.org/10.1002/cl2.1230>
- Harisanty, D., Obille, K. L. B., Anna, N. E. V., Purwanti, E., & Retrialisca, F. (2024). Cultural heritage preservation in the digital age, harnessing artificial intelligence for the future: a bibliometric analysis. *Digital Library Perspectives*, 40(4), 609–630. <https://doi.org/10.1108/DLP-01-2024-0018>
- Heersmink, R. (2023). Materialised Identities: Cultural Identity, Collective Memory, and Artifacts. *Review of Philosophy and Psychology*, 14(1), 249–265. <https://doi.org/10.1007/s13164-021-00570-5>
- Heinonen, K., & Gruen, T. (2024). Elevating conceptual research: Insights, approaches, and support. *AMS Review*, 14(1), 1–6. <https://doi.org/10.1007/s13162-024-00283-9>
- Jaillant, L., & Rees, A. (2023). Applying AI to digital archives: trust, collaboration and shared professional ethics. *Digital Scholarship in the Humanities*, 38(2), 571–585. <https://doi.org/10.1093/llc/fqac073>
- Kortti, J. (2022). War, transgenerational memory and documentary film: mediated and institutional memory in historical culture. *Rethinking History*, 26(1), 93–112. <https://doi.org/10.1080/13642529.2022.2042649>
- Lemieux, V. L., Gil, R., Molosiwa, F., Zhou, Q., Li, B., Garcia, R., ... Wang, Z. (2025). Clio-X:

- AWeb3 solution for privacy-preserving AI access to digital archives. *Cryptography and Security*. arXiv:2507.08853v1 [cs.CR].
<https://doi.org/10.48550/arXiv.2507.08853>
- Lopez, C., van Alphen, F., & Carmona, L. (2025). Narratives and collective memory. *Current Opinion in Psychology*, 65, 102087.
<https://doi.org/10.1016/j.copsyc.2025.102087>
- Mandolessi, S. (2023). The digital turn in memory studies. *Memory Studies*, 16(6), 1513–1528. <https://doi.org/10.1177/17506980231204201>
- Mao, Y., Luo, H., Zhong, Z., Chen, P., Zhang, Z., & Wang, S. (2025). Making Old Film Great Again: Degradation-aware State Space Model for Old Film Restoration. In *2025 IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR)* (pp. 28039–28049). <https://doi.org/10.1109/CVPR52734.2025.02611>
- Merriam, S. B., & Tisdell, E. J. (2015). *Qualitative Research: A Guide to Design and Implementation*. John Wiley & Sons.
- Niu, J. (2026). Archivists' use of AI: practices and impacts. *Archival Science*, 26(3), 31. <https://doi.org/10.1007/s10502-026-09553-w>
- Nonaka, I., & Takeuchi, H. (1995). *The Knowledge-Creating Company: How Japanese Companies Create the Dynamics of Innovation*. Oxford University Press.
- Porlezza, C., & Schapals, A. K. (2024). AI Ethics in Journalism (Studies): An Evolving Field Between Research and Practice. *Emerging Media*, 2(3), 356-370. <https://doi.org/10.1177/27523543241288818>
- Roselló, R. (2021). Why remember? Representations of the past in non-fiction films: fabrication, re-construction and interpretation of the collective memory(s). *Studies in Documentary Film*, 16, 1–13. <https://doi.org/10.1080/17503280.2021.1877388>
- UNESCO. (2025). *Report of the Independent Expert Group on Artificial Intelligence and Culture*. UNESCO. Retrieved from https://mondiaicult2025.com/wp-content/uploads/2025/09/CULTAI_Report-of-the-Independent-Expert-Group-on-Artificial-Intelligence-and-Culture.pdf
- Yasseri, T., Gildersleve, P., & David, L. (2022). Collective memory in the digital age. In S. M. O'Mara (Ed.), *Progress in brain research* (Vol. 274, pp. 203–226). Elsevier. <https://doi.org/10.1016/bs.pbr.2022.07.001>