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Voices of Continuity: Creating an AI-Enhanced Digital Oral Archive of Ghanaian Queen mothers and African American Church Mothers as Custodians of Community Power

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Abstract

This study explores how artificial intelligence can be used to preserve, analyze, and amplify the intergenerational leadership roles of Ghanaian Queen mothers and African American Church Mothers women who have long served as custodians of cultural memory, moral authority, and community governance. At a broader level, both institutions emerged from African matriarchal traditions where elderly women functioned as mediators, spiritual advisors, and socio-political strategists. However, colonialism, slavery, and missionary interventions often diminished their visibility within formal historical archives, while their leadership persists in oral traditions, rituals, and community practices. This project proposes the creation of an AI-enhanced digital oral archive to document and preserve their voices, philosophies, dispute resolution practices, and contributions to education, health, and social welfare. Using tools such as natural language processing, voice-to-text transcription, sentiment analysis, and metadata tagging, the archive will decode proverbs, prayer forms, adjudications, and communal instructions embedded in recorded interviews, church testimonies, and palace council proceedings. Narrowing the focus, the archive not only preserves cultural memory but also functions as a tool for leadership education, intergenerational dialogue, and decolonial historiography. By comparing oral narratives of Queen mothers in Akan chieftaincy systems with those of Church Mothers in African American Baptist, Pentecostal, and Methodist traditions, this research reveals shared philosophies of care, resistance, and community stewardship. Ultimately, this project demonstrates how AI can ethically support indigenous knowledge preservation while reinforcing the continuity of Black female moral leadership across continents and centuries.

Keywords: Digital Oral Archives; Ghanaian Queen Mothers; African American Church Mothers; AI And Cultural Preservation; Matriarchal Leadership Traditions; Decolonial Knowledge Systems

1. Introduction

1.1. Background: Oral Tradition and Matriarchal Authority in African Diasporic Contexts

Across African diasporic communities, oral tradition has served as a primary medium for transmitting memory, law, spirituality, and collective identity [1]. Matriarchal authority often governed how these narratives were preserved, with women acting as storytellers, priestesses, and guardians of cultural lineage [2]. In Yoruba, Akan, and Gullah communities, oral performances were more than storytelling; they were systems of governance and archives of resistance. These matrilineal memories travelled across the Atlantic during the transatlantic slave trade, evolving into spiritual songs, folktales, proverbs, and rituals that enabled enslaved populations to resist cultural erasure [3]. However, these forms of knowledge were fluid, interactive, and embodied, relying on performance, memory, and communal participation rather than written documentation.

In Caribbean and African American communities, elderly women became the custodians of genealogies and rituals, retaining histories that colonial institutions deliberately ignored [4]. Yet, these traditions were vulnerable to

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misinterpretation or loss due to migration, religious conversion, and displacement. Storytelling circles, lullabies, and praise poetry preserved maternal wisdom, often linked to land, ancestry, and spirituality [5]. These oral traditions offered counter-narratives to colonial documentation, asserting African identity in hostile environments.

1.2. Problem: Loss of Women's Voices in Colonial and Institutional Records

Despite their authority, African-descended women were rendered invisible in colonial archives. Administrators, missionaries, and anthropologists primarily documented male leaders, economic transactions, and legal disputes, excluding women's testimonies and cultural roles [1]. Records describing plantation life, missionary schools, and household economies rarely attributed contributions to women, even when they were central to survival and cultural retention [6]. Consequently, institutional archives became skewed repositories of memory that marginalised female voices.

Furthermore, modern archival institutions continued this legacy by privileging written documentation over oral, spiritual, or communal narratives. Oral histories collected during the 20th century were often filtered through Western academic frameworks, resulting in selective preservation that favoured male perspectives [4]. In the digital era, the disappearance of elder storytellers and the erosion of indigenous languages have intensified the risk of cultural silence. This creates an ethical dilemma: how can digital technologies preserve memory without repeating colonial hierarchies?

1.3. Role of AI in Digital Heritage Preservation

Artificial intelligence presents a transformative opportunity to recover and preserve endangered oral histories. Machine learning tools can transcribe, classify, and translate oral recordings, converting spoken memory into searchable datasets [7]. Natural language processing enables the reconstruction of indigenous languages, identifying linguistic structures and idiomatic expressions that would otherwise fade [5]. AI-based restoration of audio archives can enhance deteriorated recordings, allowing younger generations to access forgotten songs and oral testimonies.

However, AI technologies also carry risks. Algorithms trained on biased datasets may replicate colonial silences by prioritising dominant languages or patriarchal narratives. Ethical AI design requires collaboration with local communities, cultural custodians, and historians to ensure that women's voices are not only preserved but contextualised within their cultural frameworks [8]. AI must respect communal ownership of knowledge, consent, and spiritual boundaries. When implemented responsibly, AI can act as a digital griot archiving, interpreting, and safeguarding cultural memory for future generations [7].

1.4. Research Aim, Scope, and Structure of Paper

This paper investigates how AI technologies can recover, preserve, and amplify women's voices in African diasporic heritage. It focuses on three central questions: How were women's oral traditions historically marginalised? How can AI be used to archive and revitalise these narratives? And what ethical frameworks are necessary to ensure respectful preservation? The scope includes West African, Caribbean, and African American contexts, examining oral storytelling, ritual performance, and matrilineal lineage preservation [3].

The paper is structured into five sections. Following this introduction, Section 2 explores historical frameworks of oral tradition and matriarchy. Section 3 examines archival silencing and erasure in colonial and institutional records [9]. Section 4 analyses AI methodologies in digital heritage, including speech recognition, language modelling, and ethical AI practices. Section 5 concludes by proposing a decolonial AI framework grounded in community collaboration, cultural sovereignty, and feminist archival ethics [8]. Through this structure, the paper bridges traditional knowledge systems and emerging technologies to propose solutions that restore women's presence in collective memory.

2. Historical and cultural foundations of matriarchal leadership

2.1. Queen mothers in Akan Governance and Kinship Systems

In Akan societies of Ghana and Côte d'Ivoire, Queenmothers (ɔhemaa) occupy pivotal leadership positions rooted in matrilineal descent and ancestral authority [10]. Their power does not derive from ceremonial symbolism alone; they participate in judicial deliberations, land negotiations, and the selection of chiefs. The Queenmother nominates and can depose a king, reflecting a balance of gendered power enshrined within customary law [15]. Unlike Western patriarchal governance, Akan political structure places inheritance through the mother's bloodline, granting women centrality in continuity of lineage and political legitimacy [8]. The abusua (matrilineal clan) system places Queenmothers at the spiritual nexus of tradition, memory, and governance.

These women also safeguard oral histories, funerary rites, and conflict mediation, ensuring cultural cohesion during times of war, colonial intrusion, or migration [13]. Their authority extends beyond palace walls; they influence agricultural decisions, trade alliances, and inter-ethnic diplomacy. Despite colonial attempts to reclassify them as mere advisors, Queenmothers retained substantial influence over land custodianship and female education initiatives [9]. The interruption of matrilineal governance by missionary policies led to the gradual subordination of Queenmothers under male chiefs approved by colonial administrations [12].

Nonetheless, Queenmothers adapted by reorganizing political councils, establishing women's tribunals, and advocating for widows' land rights [16]. Their spiritual duties libation rituals, naming ceremonies, and ancestral consultations affirmed their role as mediators between the living and the ancestral realm [14]. In diasporic reinterpretations, especially among Afro-Caribbean religious orders, the symbolism of the Queenmother is preserved in priestess roles and matrifocal kin networks.

Through these leadership structures, Queenmothers exemplify indigenous governance models that recognize women's political and spiritual sovereignty, challenging colonial narratives that dismissed African societies as uniformly patriarchal [11].

2.2. Church Mothers in African American Spiritual Communities

Within African American churches, Church Mothers often elderly women of moral authority function as spiritual anchors, cultural educators, and community organizers [15]. Their leadership is less formal than ordained clergy yet profoundly influential. In Baptist, AME, and Pentecostal traditions, Church Mothers oversee baptism preparation, prayer circles, food distribution, and mentorship for younger congregants [9]. Their authority stems from lived experience, spiritual resilience, and communal trust rather than institutional ordination.

These women shaped religious identity during slavery and Reconstruction by preserving African rhythms, mourning rituals, and call-and-response worship structures [13]. They provided informal schooling, healing practices, and economic support through church-based savings clubs [12]. Unlike male pastors who were more publicly documented, Church Mothers transmitted unwritten spiritual epistemologies through song, prophecy, and testimony.

As custodians of memory, they maintained burial records, family genealogies, and healing recipes materials rarely acknowledged in ecclesiastical archives [8]. In modern activism, Church Mothers mobilized congregations for civil rights boycotts, housing advocacy, and voter registration [16]. Their presence bridges sacred and domestic spaces, blending prayer with childcare, fundraising, and counselling. Thus, they represent a continuation of African matrifocal leadership adapted to Christian institutions under racial oppression [14].

## 2.3. Colonialism, Slavery, and Archival Silencing of Women's Authority

Colonial administrators and missionaries systematically suppressed women's leadership to align African governance with Victorian and patriarchal norms [11]. Queenmothers were reclassified as symbolic figures without political jurisdiction, and Church Mothers were relegated to domestic religious roles under male pastors [15]. Slave ship logs, plantation diaries, and missionary journals documented male chiefs and priests, while omitting female negotiators, healers, and spiritual mediators [9].

This erasure extended into state archives, where oral testimonies, ritual speeches, and women's economic decisions were deemed unreliable or non-scientific [12]. As a result, contemporary historians struggle to reconstruct women's authority from fragmented colonial records. Figure 1 illustrates the disrupted genealogical and leadership hierarchy of Queenmothers and Church Mothers across precolonial, colonial, and diasporic timelines, highlighting points where colonial law replaced matrilineal succession with male-centric governance [8]. Digital tools now attempt to recover these silenced voices, though caution is necessary to avoid replicating archival biases [16].

2.4. Intersections of Gender, Spirituality, and Economic Power

Women's authority in African diasporic contexts is inseparable from economic agency and spiritual leadership [14]. Queenmothers controlled market regulations, adjudicated trade disputes, and organized female guilds dealing in gold, textiles, and agriculture [10]. Similarly, Church Mothers in African American communities managed charity funds, burial societies, and informal savings networks known as "sou-sou" or church banks [13]. These roles positioned women at the crossroads of economic sustainability and spiritual duty.

Spiritual legitimacy enhanced their economic power; rituals invoked ancestral blessings for market success or harvest protection [9]. Conversely, economic independence reinforced their spiritual authority, allowing patronage of churches, schools, and widows [11]. Colonial taxation and missionary teachings attempted to delegitimize women's control over resources, framing economic leadership as masculine [15]. Yet matrifocal structures persisted, revealing a dynamic intersection of survival, resistance, and sacred responsibility [12]. This interplay demonstrates that gendered power in African diasporas is both material and metaphysical [16].
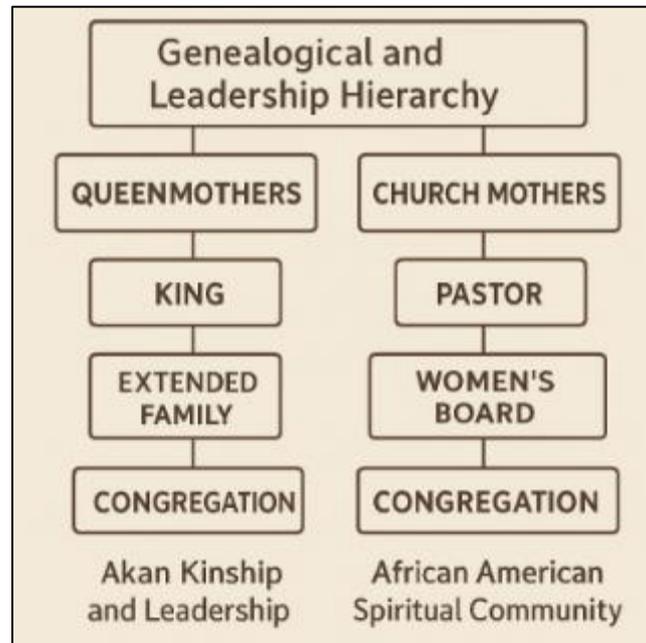
Figure 1 Genealogical and leadership hierarchy of Queen mothers and Church Mothers

3. Oral tradition as archive: memory, ritual, and authority

3.1. Oral History as Epistemology and Resistance

Oral history in African and diasporic communities is not merely a method of storytelling but a way of knowing, transmitting truth, and resisting domination [18]. It challenges written colonial records by privileging memory, lived experience, and communal validation over bureaucratic authorship. Among Akan, Yoruba, and Gullah traditions, knowledge is preserved through griots, Queen mothers, and elderly women who serve as cultural archives [22]. Their testimonies reinforce land rights, lineage, and ancestral belonging, privileging emotional truth and spiritual continuity rather than linear chronology. Oral epistemology rejects Western dichotomies of myth versus fact, instead merging spirituality, ethics, and historical record [15].

Under slavery and colonial rule, oral history became a tool of survival and coded rebellion [20]. Enslaved women embedded maps, escape routes, and family instructions into lullabies and folktales, which appeared harmless to slaveholders yet preserved subversive intent [24]. These narratives affirmed dignity and identity in the absence of citizenship, literacy, or legal status. Oral tradition functioned as a living archive dynamic, embodied, and adapted to migration, Christianity, and Black Atlantic cultural exchanges [17].

In contrast to written archives that excluded African women's voices, oral memory offered multivocality. Testimonies could be corrected or expanded by community members, making them participatory rather than author-centric [21]. This fluidity also allowed reinterpretation across generations, transforming grief into praise, trauma into song, and silence into communal witness [19]. By rejecting fixed authorship, oral history resists colonial claims of historical authority [25]. It asserts that knowledge is not owned but shared, performed, and inherited. Thus, oral tradition remains both an intellectual system and a political act preserving identity where written history-imposed erasure [23].

3.2. Proverbs, Songs, Prayers, and Storytelling as Tools of Governance

Proverbs and songs serve as instruments of governance within African and diasporic societies, embedding legal, moral, and political instruction into poetic speech [17]. Queen mothers in Akan courts use proverbs to legitimize decisions, correct chiefs, and maintain social cohesion without confrontation [19]. Their language carries metaphorical authority saying indirectly what cannot be said openly [23]. Proverbs such as "The hen knows it is dawn, but leaves the crowing to the cock" convey wisdom about discretion and power [20].

In African American churches, spirituals and prayer chants guided communal behavior, funerary ethics, and conflict resolution [25]. Church Mothers interpret scripture through testimonies, shaping moral discipline and social responsibility [18]. Songs such as "Wade in the Water" encoded both biblical symbolism and directions for escape from slavery [22]. Storytelling circles fostered democratic participation, where elders taught children economic ethics, kinship obligations, and gendered responsibilities [16].

These oral art forms regulated justice and memory outside colonial legal systems [21]. They upheld accountability through shame, blessing, or public admonishment rather than imprisonment. Thus, narrative became law, rhythm became record, and prayer became policy [24]. Oral governance demonstrates that leadership is not solely written in decrees but woven into speech, music, and communal ritual [15].

3.3. Ritual Authority and Mediation Roles in Communities

Ritual authority is central to how Queen mothers and Church Mothers mediate conflict, uphold morality, and maintain ancestral balance [19]. In Akan courts, Queen mothers preside over domestic disputes, inheritance claims, fertility concerns, and naming ceremonies, invoking ancestors through libation and sacred proverbs [23]. Their authority is hereditary yet validated through communal praise, spiritual legitimacy, and service rather than coercion [17]. They are seen as bridges between the living and the dead, negotiating harmony through purification rites and symbolic offerings [25].

Similarly, African American Church Mothers exercise ritual influence within baptisms, foot-washing ceremonies, healing prayers, and mourning rituals [18]. Their authority is not ordained but earned through moral witness, endurance, and prayerful leadership [21]. During grief or social crisis, they arbitrate disputes through scripture, fasting, and intercessory prayer rather than legal adjudication [20].

These forms of mediation are not merely symbolic but administrative. They involve land rights, welfare distribution, and spiritual counseling [22]. Their influence is illustrated in Table 1, which compares the symbolic practices, economic functions, and ritual duties of Queen mothers and Church Mothers. Although colonial records minimized their roles, their governance persists through embodied ritual, communal legitimacy, and sacred duty [24].

3.4. Challenges of Oral Transmission in Modernity

Despite its resilience, oral tradition faces disruption in modern contexts due to urbanization, language shift, religious conversion, and digital media dominance [16]. Younger generations increasingly rely on written and visual culture, distancing themselves from ancestral memory practices [19]. Migration to cities and diaspora communities' fragments family structures, reducing opportunities for intergenerational storytelling [23].

Global religions, especially Western missionary Christianity, often discouraged indigenous songs, libations, and matrilineal rites, branding them as pagan or unscientific [17]. This stigmatization eroded respect for Queenmothers and Church Mothers as carriers of sacred history [21]. Additionally, deaths of elderly women during pandemics, wars, and displacement result in irreversible knowledge loss [25].

Digital technologies offer preservation opportunities yet risk commodifying sacred rituals or removing them from their communal context [20]. Without ethical guardianship, archives become detached from living communities. Thus, oral tradition must adapt to remain both authentic and accessible in the modern world [18].

Table 1 Key Symbolic Practices of Queen mother's vs Church Mothers

Symbolic Practice / Role	Queen mothers (Akan and Matrilineal Systems)	Church Mothers (African American and Diasporic Churches)
Spiritual Authority	Conduct libation rituals to ancestors; oversee purification ceremonies; act as spiritual intermediaries during conflict or illness.	Lead prayer vigils, anointing ceremonies, and intercessory prayer sessions; lay hands for healing and spiritual protection.
Genealogical Role	Custodians of matrilineal lineage; confirm royal bloodlines; supervise naming ceremonies and succession processes.	Keep church family histories, burial records, and baptismal lineage; preserve memory of enslaved ancestors through testimony.
Conflict Mediation	Chair women's courts or palace tribunals; mediate land disputes, marital conflicts, and inheritance issues.	Resolve disputes within congregations; provide counsel on marriage, moral failings, or financial hardship.
Ritual Speech and Proverbs	Use proverbs, parables, and ceremonial speech in public councils to sanction or critique chiefs.	Use biblical wisdom, testimonies, hymns, or gospel songs to correct, bless, or admonish church members.
Cultural Transmission	Teach girls royal etiquette, fertility rituals, craft making, and matrilineal duties through storytelling and song.	Train young women in scripture, modesty, caregiving, choir leadership, and ritual hospitality.
Economic Influence	Regulate markets, control trade guilds, and oversee widow and orphan welfare from palace resources.	Lead church fundraising, food drives, savings groups ("sou-sou"), charity funds, and meal programs.
Symbolic Objects and Regalia	Carry royal stool or staff (akyeame), wear ceremonial beads and gold ornaments as signs of authority.	Wear white attire, lace head coverings, prayer shawls, carry oil or handkerchief symbolizing purity and service.
Public Ritual Presence	Central figures during funerals, enstoolments (installations), harvest festivals, and ancestral remembrance rites.	Lead communion preparation, baptismal support, funeral repasts, and foot-washing ceremonies.
Moral Surveillance and Discipline	Monitor chiefs' moral conduct and can publicly admonish or depose rulers for corruption or abuse.	Uphold holiness codes; enforce modesty, prayer discipline, and community service expectations.
Symbolic Ideals	Embody maternal nationhood: "Mother of the Stool" (Ohemaa) standing for justice, fertility, and ancestral continuity.	Embody spiritual motherhood: "Mother of the Church," symbolizing resilience, nurture, moral stability, and faith continuity.

4. Why AI? Digital humanities and emerging technologies

4.1. AI in Archival Research and Cultural Preservation

Artificial intelligence is transforming archival research by enabling the recovery, classification, and preservation of cultural heritage materials previously excluded from institutional memory [25]. AI-assisted digitization can scan fragile manuscripts, transcribe deteriorating documents, and reconstruct partially damaged texts, allowing researchers to retrieve suppressed histories of African and diasporic women [22]. Unlike traditional archives that favored written colonial accounts, AI tools allow for multimodal preservation, including audio, visual, and performative records. This enhances the documentation of songs, rituals, and oral testimonies that were historically undervalued [28].

AI systems also facilitate pattern detection across dispersed archives, linking names, kinship roles, and migration paths found in letters, church ledgers, and oral recordings [24]. For communities lacking written genealogies, this enables reconstruction of fragmented family histories. However, algorithms must be trained using culturally grounded datasets to avoid misclassification of indigenous terminologies or sacred expressions [27]. When combined with community-curated metadata, AI can serve as a restorative tool for decolonizing archives and reintroducing women into historical narratives [30]. Its potential lies not only in preservation but in enabling active cultural reclamation and storytelling across generations [26].

4.2. NLP, Speech Recognition, and Metadata Extraction for Oral Narratives

Natural Language Processing (NLP) and speech recognition technologies have advanced to a point where they can transcribe oral narratives across multiple dialects, tonal languages, and performance settings [23]. These tools convert oral heritage into searchable text, enabling researchers to analyses rhythm, metaphor, and lineage embedded within proverbs and storytelling [29]. Speech-to-text algorithms can identify speaker turns, intonation, and pauses, preserving the performative qualities of griots, Queen mothers, and Church Mothers [22]. When paired with acoustic enhancement, AI restores clarity to distorted historical recordings [26].

Metadata extraction further enriches oral archives by tagging names, spiritual symbols, clan affiliations, and geographic references within the narrative [30]. This allows cross-referencing between oral testimony and existing historical records, creating multi-layered archival maps [28]. For example, machine learning models can distinguish between Akan libation chants and Gullah spiritual hymns by their linguistic structure and repetition patterns [25]. Yet, transcription accuracy is challenged by code-switching, ceremonial language, and sacred secrecy embedded intentionally within oral traditions [27]. To address this, hybrid AI models incorporate community input, linguistic expertise, and cultural knowledge to enhance accuracy while ensuring ethical representation [24].

4.3. Ethical Issues: Data Privacy, Ownership, Cultural Consent

Despite its potential, AI-driven heritage preservation raises critical ethical concerns surrounding ownership, consent, and privacy [25]. Many oral histories contain sacred genealogies, healing knowledge, or testimonies of trauma that communities may not wish to be publicly accessible [23]. Digitizing such narratives without informed consent risks replicating colonial extraction, even when done under academic or preservationist intentions [29]. Questions arise over who owns digital recordings: the community, the researcher, the algorithm developer, or the archive hosting institution [27].

Furthermore, AI models often store sensitive biometric voice data, which can be misused for surveillance or commercial exploitation [26]. Indigenous and African diasporic scholars advocate for cultural data sovereignty, where communities determine how, when, and by whom their knowledge is accessed [28]. Ethical frameworks demand collaborative design of AI systems, ensuring transparency, consent agreements, and the right to withdraw cultural data. Figure 2 illustrates an AI pipeline for digitizing, transcribing, and tagging oral archives, highlighting key intervention points for community approval and data protection [24]. Cultural sensitivity must be integrated into algorithmic design to avoid misinterpretation of rituals or commodification of sacred heritage [30]. Without these safeguards, AI risks becoming a new colonial archive disguised as innovation [22].

4.4. Case Studies of AI in Indigenous and African Memory Projects

Several initiatives demonstrate how AI can support cultural preservation when developed collaboratively. In Ghana, digital heritage projects are using machine learning to categorize Queen mother court proceedings and matrilineal genealogies recorded in Twi and Fante, enabling reconstruction of succession lines disrupted by colonial rule [28]. Similarly, in the Gullah Geechee communities of the United States, AI-assisted speech modelling has helped document dying dialects and oral prayers traditionally passed through Church Mothers [23].

In South Africa, AI is being applied to archive Xhosa and Zulu praise poetry, capturing tonal shifts and metaphor structures previously untranslatable through written transcription alone [26]. Indigenous groups in Canada have employed neural networks to restore audio of endangered languages and apply metadata reflecting spiritual custodianship rather than Western taxonomy [29]. These projects underscore the importance of co-creation, where elders, technologists, and linguists collaboratively ensure respectful accuracy while retaining cultural autonomy [24].
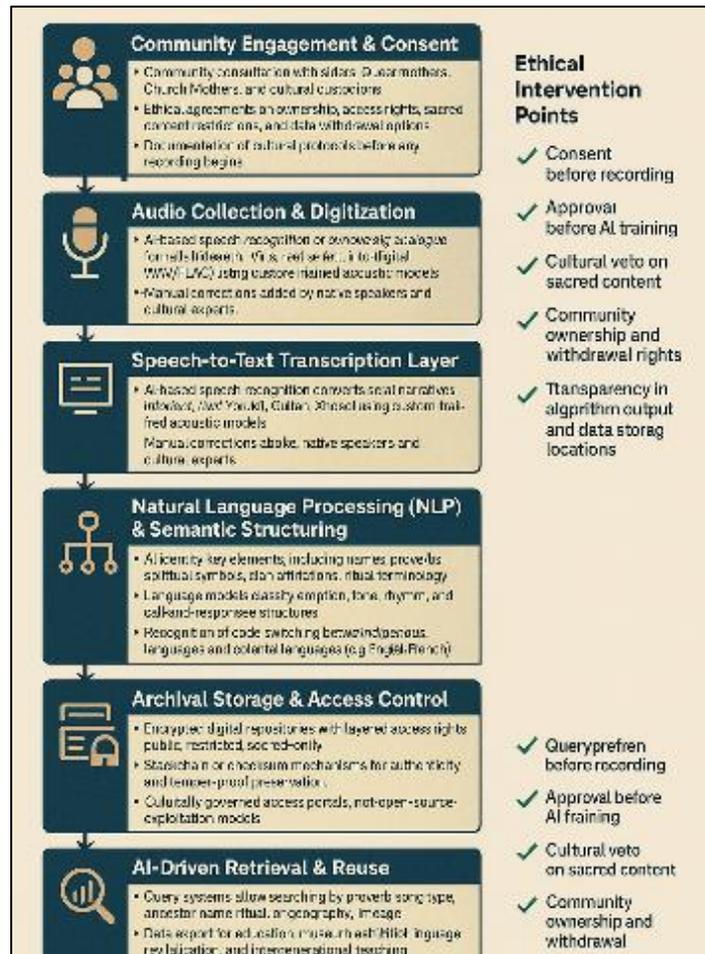
Figure 2 AI pipeline for digitizing, transcribing, and tagging oral archives

5. Designing an AI-enhanced digital oral archive

5.1. Field Data Collection: Interviews, Palace Councils, Church Testimonies

Field data collection for documenting women's oral authority in African and diasporic communities requires culturally embedded and ethically sensitive methodologies. Researchers often begin with semi-structured interviews involving Queen mothers, lineage elders, market leaders, and female palace attendants who act as custodians of matrilineal governance [30]. These interviews are conducted in indigenous languages such as Twi, Ga, and Ewe, allowing narrators to articulate memory without translation loss. Palace council observations provide insight into decision-making processes, conflict mediation, and ritual protocol, capturing how authority is expressed through gesture, proverb, and silence rather than formal decrees [33]. Access to these spaces requires approval from traditional councils and observance of protocols such as libation offerings or symbolic gifts of schnapps and kola nuts.

Within African American communities, Church Mothers participate in testimonies, altar calls, prayer meetings, and healing services where oral tradition is embedded in everyday worship experiences [28]. These sessions are often recorded with consent using audio and video equipment, while field notes document body language, rhythm, and congregational responses. Researchers also collect spirituals, funeral sermons, and women's auxiliary meetings that reflect the intersection of faith, memory, and social care [34].

Ethnographic trust is essential; narrators must understand the purpose of documentation and retain authority over how their voices are used [31]. Researchers avoid extractive questioning and instead employ collaborative interviewing, where participants can review and adjust their recorded testimonies. Archival field notes also capture spatial elements palace architecture, church pew arrangement, drum rhythms which contextualize spoken narratives within physical environments [29]. These immersive methods ensure oral histories are documented with cultural accuracy, spiritual respect, and acknowledgment of women's leadership traditions across generations [32].

5.2. Data Processing: Transcription, Speaker Recognition, Multilingual Tagging

Once field data is gathered, transcription becomes the first critical stage of processing. Audio recordings of Queenmother councils, church testimonies, and storytelling sessions are transcribed verbatim to preserve cadence, pauses, and tonal inflections that indicate authority or dissent [28]. AI-assisted transcription tools are used but require human correction due to misinterpretations of idiomatic language and sacred terms [35]. Researchers annotate emotional tones, applause, or shifts between Twi, English, and AAVE to retain semantic context.

Speaker recognition systems are introduced to differentiate voices in group discussions, palace debates, or multi-speaker worship sessions [30]. These systems analyze pitch, rhythm, and speech patterns, allowing accurate attribution of statements to individual elders or Church Mothers. However, traditional honorifics like "Nana" or "Mother" must be manually tagged to avoid misclassification by algorithms trained on Western naming systems [33].

Multilingual tagging is applied to structure data for digital archives. Keywords such as lineage, libation, inheritance, prayer, or anointing are assigned in Twi, Ga, Ewe, and English to facilitate cross-referencing across cultural contexts [31]. Metadata includes speaker identity, ritual context, emotional intensity, and whether the speech is public or sacred. All data is encrypted and stored in culturally sensitive repositories where communities retain editing rights [29]. By integrating machine learning and human expertise, data processing transforms raw audio into ethically curated archives while preserving the complexity and dignity of oral authority [32].

5.3. Language Preservation: Twi, Ga, Ewe, African American Vernacular English (AAVE)

Language preservation is essential in ensuring oral heritage remains intelligible across generations. Twi, Ga, and Ewe are tonal languages were meaning shifts based on pitch, rhythm, and repetition [34]. AI tools trained on Western phonetics often misinterpret tonal variations, requiring customized language models co-designed with native speakers [30]. Community linguists assist in translating palace dialogues, proverbs, and ceremonial chants without losing embedded spiritual symbolism [28].

African American Vernacular English (AAVE) presents similar challenges. Church Mothers use code-switching between biblical English, AAVE, and prophetic utterances during testimonies and healing sessions [32]. Literal transcription fails to capture call-and-response dynamics, audience interjections, or spiritual moans that form part of the communicative act [35]. Therefore, AI models integrate phonetic labeling, rhythm detection, and discourse markers to retain authenticity.

Digital dictionaries linking Twi, Ga, Ewe, and AAVE expressions are developed to aid future archival searches [29]. These lexicons document metaphorical language, such as "the stool remembers" or "the spirit caught her," which signify political and spiritual states rather than literal meaning [31]. Table 2 compares AI tools used for transcription, sentiment analysis, and pattern detection across these languages, showing how linguistic preservation and machine learning intersect [33]. This approach ensures language remains a living conduit of cultural power.

5.4. Interface Design and Community Accessibility

For AI archives to serve living communities rather than distant institutions, interface design must prioritize accessibility, usability, and cultural respect [30]. Digital platforms are developed with multilingual dashboards allowing navigation in Twi, Ga, Ewe, English, and AAVE [29]. Voice-activated search features are incorporated to accommodate elders who may not type or read fluently, allowing them to retrieve oral histories through spoken commands [34]. Visual elements such as clan symbols, queen stool emblems, and church headscarves are used for intuitive navigation rather than purely textual menus.

Accessibility includes offline functionality for rural palaces and churches with limited internet connectivity [31]. Data is stored in encrypted community cloud servers or local digital hubs managed by cultural councils or church boards [28]. Users can comment, correct, or restrict access to certain recordings, ensuring archives remain participatory rather than extractive [35]. Interactive timelines link oral testimonies to historical events, migration patterns, and genealogies, fostering educational use among schools and diaspora youth.

Training workshops equip young archivists and church media teams to operate recording devices, annotate metadata, and manage digital heritage repositories [32]. By merging technology with communal stewardship, interface design transforms AI archives into tools of empowerment, continuity, and intergenerational dialogue [33].

5.5. Ethical AI: Decolonial Data Principles and Informed Consent

Ethical AI in oral heritage preservation demands a decolonial approach that center's community ownership, transparency, and informed consent [28]. Data gathered from Queen mothers and Church Mothers must not be treated as public property but as cultural knowledge governed by custodial protocols [30]. Consent is ongoing rather than one-time, allowing narrators to withdraw, restrict, or revise their contributions as contexts change [31]. Researchers must disclose how recordings will be stored, who can access them, and whether AI tools will analyze them for sentiment or pattern detection [35].

Decolonial data principles insist that archives reflect indigenous epistemologies rather than enforce Western metadata standards [29]. This means categorizing content based on spiritual seasons, clan lineage, or ritual significance not solely by date or speaker [34]. AI tools are audited to avoid reinforcing colonial hierarchies, particularly when translating sacred phrases or visualizing genealogies [32]. Community advisory councils consisting of chiefs, Church Mothers, linguists, and youth representatives oversee all technological interventions [33].

Commercial use of recordings is prohibited without collective approval to prevent cultural commodification or misappropriation [28]. Ethical AI becomes not only a technical framework but a moral contract ensuring memory is preserved with dignity, sovereignty, and relational accountability [30].

Table 2 AI Tools vs Functions in Oral Heritage Preservation

AI Tool / Technology	Primary Function(s)	Application to Heritage (Queenmothers and Church Mothers)
Google Speech-to-Text / Whisper AI	Audio transcription, multilingual speech recognition	Converts oral interviews, palace dialogues, and church testimonies into text for archival use.
NLP Models (BERT, GPT-style models)	Semantic understanding, text generation, contextual analysis	Interprets proverbs, prayers, and ritual language; helps reconstruct missing segments in oral histories.
Speaker Recognition AI (e.g., Azure Speaker ID, Resemblyzer)	Identity detection, voice profiling	Differentiates voices during palace council discussions, identifies speakers in multi-person testimonies.
Metadata Tagging Systems (SpaCy, Stanford CoreNLP)	Entity recognition, topic labeling	Tags kinship roles, clan names, spiritual symbols (e.g., Queenmother titles, biblical references).
Translation Models (MarianMT, NLLB-200)	Language translation (Twi, Ga, Ewe, AAVE to English)	Converts indigenous languages into English while preserving cultural idioms and lineage terms.
Sentiment Analysis Tools (VADER, TextBlob)	Emotional tone detection, affective computing	Detects grief, resistance, or reverence in oral testimonies, useful for interpreting spiritual songs or mourning rituals.
Pattern Detection and Topic Modeling (LDA, BERTopic)	Identifies recurring themes and motifs	Finds patterns in oral archives—inheritance conflicts, spiritual mediation, or colonial resistance.
Audio Restoration and Enhancement AI (Adobe Podcast AI, iZotope RX)	Noise reduction, voice clarity enhancement	Restores degraded recordings of Queenmother coronations or church revival sermons.
Knowledge Graphs (Neo4j + NLP integration)	Relationship mapping, lineage reconstruction	Maps genealogies of matrilineal leadership and church mother lineages across regions and generations.
AI Ethics Frameworks (Local Contexts Labels, CARE Principles)	Cultural consent, data ownership protection	Ensures rituals, names, and testimonies are archived with community permission and attributed ownership.

6. Comparative leadership philosophies and practices

6.1. Governance: Dispute Resolution and Communal Decision-Making

In African matrilineal societies such as the Akan, governance is not centralized under male chiefs alone but shared with Queenmothers who act as political mediators, moral adjudicators, and kinship custodians [34]. Their governance authority is rooted in matrilineal descent, giving them legitimacy to settle disputes involving land inheritance, marriage conflicts, widowhood rights, and inter-clan negotiations. They convene palace councils, where deliberations are conducted through proverbs, lineage history, and appeals to ancestral precedent rather than formal constitutions [37]. Decisions are reached by consensus, reflecting governance as a communal rather than authoritarian practice [33].

Similarly, in African American religious communities, Church Mothers influence governance through moral counselling, conflict mediation, and congregational discipline [32]. While pastors maintain ecclesiastical authority, Church Mothers guide decision-making from the perspective of lived experience, scriptural interpretation, and communal care [39]. Their advisory role extends to issues such as youth misconduct, marriage disputes, and resource allocation during crises. They rarely exercise power through decrees; instead, they persuade through testimony, prayer, and public example [36].

Both Queenmothers and Church Mothers operate as guardians of harmony, prioritizing reconciliation over punishment. Their governance highlights a relational form of leadership that values dialogue, memory, and spiritual accountability. By embodying justice through compassion, they anchor community stability amidst colonial disruption, migration, and modernization [40].

6.2. Economic Power: Market Regulation vs Church-Based Mutual Aid

Economic authority in African and diasporic communities is deeply gendered yet powerful in its matrifocal nature. Queenmothers traditionally regulate local markets, set trading standards, and enforce ethical pricing systems within urban centres such as Kumasi and Cape Coast [35]. They oversee market queens leaders of traders in commodities such as fish, gold, or textiles ensuring fairness, sanitation, and dispute settlement among vendors [32]. These roles position women at the heart of precolonial economic planning and taxation systems, generating revenue for community festivals, funerary rites, and public infrastructure [37]. Colonial administrations attempted to replace these institutions with male-centred councils, but Queenmothers adapted by integrating trade unions and modern municipal boards [39].

In contrast, economic power among Church Mothers emerges through mutual aid ministries, burial societies, soup kitchens, and benevolent clubs within African American churches [33]. These financial networks provide microloans, funeral support, rent assistance, and food distribution, functioning as grassroots welfare economies [40]. Contributions are voluntary yet morally bound, creating systems of economic solidarity outside state welfare structures [36]. Though not commercial leaders like Queenmothers, Church Mothers control significant financial decision-making through church treasuries, women's auxiliaries, and charity drives [38].

Both systems reveal that women's economic leadership is both structural and spiritual. Queenmothers regulate public trade while Church Mothers sustain survival economies within religious communities. Their economic influence challenges stereotypes that women's contributions were confined to domestic labour or passive religious service [34].

6.3. Care Work: Maternal Leadership, Welfare, Education

Care work forms the emotional and social infrastructure of both palace and church institutions. Queenmothers are viewed as the symbolic "mothers of the nation," responsible for orphan care, widow advocacy, and the moral upbringing of future chiefs [32]. They supervise puberty rites, midwifery practices, and mentoring of girls in etiquette, diplomacy, and clan history [36]. Their maternal authority extends to offering sanctuary to abused wives or displaced youth, reinforcing the palace as both a political and caregiving space [38].

Church Mothers perform parallel roles in African American communities, particularly within Baptist and Pentecostal congregations. They mentor young women, organize feeding programs, visit the sick, and supervise Sunday school education [39]. Their care work blends prayer with practical support sewing uniforms, cooking for funerals, and organizing childcare for working mothers [34]. This labour is unpaid yet foundational, sustaining the spiritual and emotional resilience of congregations [37].

These roles illustrate how governance is inseparable from nurturing. Care is not a private obligation but a communal duty tied to leadership and spiritual responsibility. Figure 3 compares the leadership traits of Queenmothers and Church Mothers, showing overlaps in caregiving, moral guidance, and authority through maternal service [40].

6.4. Spiritual Authority and Moral Discipline

Spiritual authority is a central pillar of Queenmother and Church Mother leadership. Queenmothers serve as priestly figures who maintain shrines, oversee libation rituals, and communicate with ancestral spirits to bless harvests or resolve calamity [33]. They preside over naming ceremonies, purification rites, and oath-taking, ensuring spiritual law is upheld alongside customary law [35]. Their power derives from lineage, spiritual purity, and ritual knowledge rather than physical force or wealth [40]. Failure to observe spiritual duties is believed to disrupt cosmic harmony, bringing misfortune to the clan [32].

Church Mothers exercise spiritual authority through prayer, prophecy, scripture recitation, and moral supervision within congregations [36]. Their influence is not sacramental, like ordained clergy, but charismatic, emerging from perceived holiness, endurance, and divine favour [38]. They enforce moral discipline through testimony, correction, and intercessory prayer rather than legal sanctions [37]. During worship, their amens, shouts, and prophetic cries guide the emotional rhythm of the service, symbolizing spiritual guardianship [34]. They correct behaviours privately or publicly, not to shame but to restore righteousness.

In both contexts, spiritual leadership is performative, embodied, and accountable to God or ancestors rather than colonial or state institutions [39]. It fuses morality, ritual, and communal loyalty, shaping ethical life across generations [35].
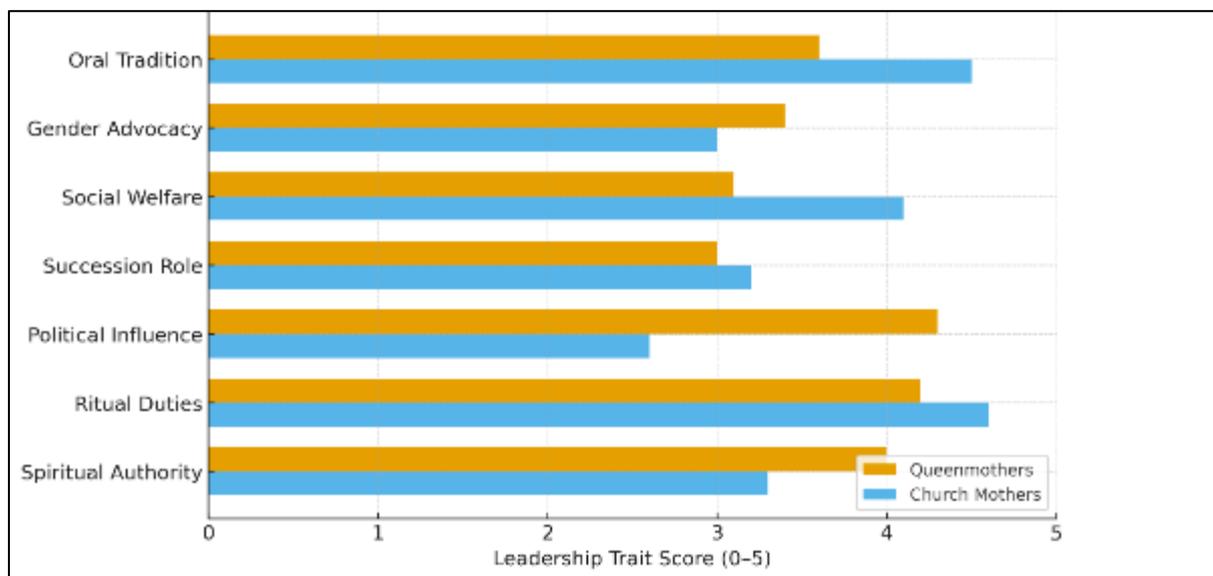
Figure 3 Comparative matrix of leadership traits — Queen mothers vs Church Mothers

7. Case narratives: recovered voices

7.1. Yaa Asantewaa and Resistance Memory

Yaa Asantewaa, Queenmother of Ejisu, symbolizes the fusion of political sovereignty and maternal defiance within Asante resistance history [41]. In 1900, during the War of the Golden Stool, she challenged colonial confiscation of sacred regalia and publicly condemned male chiefs who hesitated to fight, declaring that if the men would not stand, women would [38]. Her leadership was not accidental but grounded in matrilineal authority, as Queenmothers possessed the power to legitimize kingship, mobilize warriors, and invoke ancestral justice. Oral histories describe her speeches as rhythmic, proverb-laden, and spiritually charged, functioning both as political instruction and ancestral invocation [42].

Though eventually exiled by the British, her defiance became embedded in liberation songs, funeral dirges, and storytelling across Ghana and the diaspora [45]. These narratives elevate her beyond military leadership into a symbol

of collective memory and feminine resistance. In diasporic reenactments and school curricula, she represents not only anti-colonial struggle but also matriarchal governance suppressed by imperial archives [40]. Her memory contests colonial portrayals of African women as passive, reclaiming them instead as strategists, historians, and protectors of sacred authority [39]. Yaa Asantewaa's legacy endures as a living archive transmitted through orature, murals, festivals, and Queenmother councils today [43].

7.2. 1881 Atlanta Washerwomen Strike and Church-Based Mobilization

The 1881 Atlanta Washerwomen Strike illustrates how African American women used church networks to mobilize labour resistance in the post-emancipation South [44]. Over 3,000 laundresses, many affiliated with Baptist and Methodist churches, organized a citywide strike demanding fair wages and autonomy from white employers [40]. These women, often Church Mothers or deaconesses within their congregations, framed labour justice as a moral and spiritual duty, invoking biblical language asserting that "dignity belongs to those who labour" [38].

Church prayer meetings doubled as strategy sessions where organizers developed fee structures, mutual aid funds, and boycott tactics [42]. Testimonies and hymns reinforced unity, transforming economic protest into sacred resistance. Oral histories recall leaders such as Carrie Steele Logan using scripture and spiritual chants to rally support while warning against fear and division [45].

The strike's impact extended beyond wage disputes; it asserted Black women's right to economic self-determination, public leadership, and collective bargaining [39]. Although city officials threatened fines and arrests, the women persisted, controlling the laundry economy and shaping early labour union culture. This movement is now remembered as a foundational moment where church-based maternal authority intersected with economic activism and proto-feminist labour politics [41].

7.3. Queen mother Interviews: Contemporary Roles in Ghana

Contemporary Queenmothers in Ghana describe their roles as evolving yet rooted in ancestral duty [43]. Interviews in towns like Mampong, Mamfe, and Cape Coast reveal responsibilities including mediation of land disputes, advocacy for girls' education, and prevention of child marriage [38]. They preside over palace courts, mentor young women, and collaborate with NGOs on public health campaigns, especially maternal mortality and sanitation projects [44].

Many note that while colonial systems diminished their authority, recent constitutional recognition and the National House of Queenmothers have revived their influence in governance debates [40]. They also participate in radio programs and community forums, speaking on morality, lineage preservation, and economic rights for widows [42]. Despite modernization pressures, Queenmothers assert that their leadership still derives from ancestral stools, spiritual discipline, and communal trust, not political appointment [45]. Their testimonies confirm that matriarchal governance persists as a living institution, adapting to democracy, globalization, and youth activism [41].

7.4. Church Mother Testimonies in Alabama, Georgia, and Mississippi

Church Mothers in Southern states such as Alabama, Georgia, and Mississippi recount roles grounded in prayer, discipline, and communal welfare rather than formal titles [39]. In oral testimonies, they describe preparing communion, mentoring teenage girls, visiting prisons, and organizing funeral meals [44]. They speak of "watching over the church like a mother watch over her children," emphasizing patience and moral correction through love rather than punishment [38].

These testimonies highlight resilience during segregation, economic poverty, and racial violence, where Church Mothers sustained community survival through prayer circles and food ministries [42]. Their voices remain vital archives of spiritual leadership and maternal justice [45].

8. Challenges And Limitations

8.1. AI Bias and Loss of Tonal/Cultural Nuance

While artificial intelligence enhances the preservation of oral traditions, it often struggles to interpret tone, rhythm, silence, and spiritual intention embedded in African and diasporic storytelling [45]. Many AI transcription models are trained on Western phonetic systems and fail to recognize tonal variations in Twi, Ga, or Ewe, where meaning shifts with pitch and repetition [43]. This leads to mistranscriptions of proverbs, prayer chants, and praise names, stripping

them of cultural depth. AI also reduces embodied elements such as pauses for ancestral invocation or communal responses to empty silence, diminishing spiritual significance in digitized archives [48].

Similarly, African American Vernacular English within Church Mother testimonies is often "corrected" by AI into grammatically standard English, erasing identity markers and theological poetics present in prayer language [50]. Sentiment analysis tools misinterpret mourning songs or ethical rebuke as anger or negativity due to their reliance on Eurocentric emotional taxonomies [46]. Without culturally sensitive training datasets, AI risks reproducing colonial silences and flattening vibrant oral epistemologies into sanitized metadata [42]. Thus, bias is not merely technical but epistemic, affecting how future generations access and interpret heritage. Protecting tonal and cultural nuance demands co-created AI systems guided by elders, linguists, and ritual practitioners [47].

8.2. Preservation vs Appropriation: Who Owns the Archive?

The digitization of oral heritage raises urgent ethical questions about ownership and cultural sovereignty [49]. When recordings of Queenmother councils or Church Mother testimonies are uploaded to digital repositories, who holds authority over their use the community, the researcher, or the platform hosting the data? Historically, colonial archives extracted cultural material without consent, turning sacred rituals and genealogies into academic property [42]. AI risks repeating this dynamic if data is stored in commercial cloud servers or accessed without cultural protocols [44].

Some institutions claim intellectual property rights over digitized content simply because they funded recording technology or transcription software [47]. This transform lived memory into digital property, excluding the very communities that generated it [46]. For example, voice datasets of ritual prayers have been used to train speech recognition tools without compensating or consulting the original speakers [50]. This creates a tension between preservation and appropriation.

Indigenous data sovereignty frameworks now argue that communities should control access, interpretation, and distribution of their knowledge even when digitally archived [43]. Ethical stewardship means that archives must follow communal licensing, spiritual restrictions, and culturally specific privacy laws, not only academic protocol [48]. Without this, preservation becomes extraction under the guise of innovation [45].

8.3. Intergenerational Transmission and Digital Exclusion

Digital archives are often celebrated as tools for intergenerational continuity; however, unequal access to technology creates new barriers between elders and youth [46]. Many Queenmothers and Church Mothers are unfamiliar with digital interfaces, limiting their participation in how their narratives are stored or shared [49]. Meanwhile, younger generations may access archives through smartphones yet lack cultural literacy to fully interpret the stories they encounter [44]. Thus, memory risks becoming detached from lived practice.

Rural palaces and churches often lack stable electricity or internet, preventing local ownership of digital heritage [42]. If oral archives remain stored in urban universities or foreign servers, communities become consumers rather than custodians of their own history [47]. Intergenerational transmission requires not only digitization but teaching, ritual practice, and community dialogue [45]. Without bridging digital divides, AI may document the past yet fail to sustain living tradition for future generations [50].

9. Future directions: AI, digital sovereignty, and education

9.1. Digital Repatriation and Afro-Diasporic Knowledge Sovereignty

Digital repatriation seeks to return cultural memory not just physical artefacts to African and diasporic communities through archives, audio testimonies, and ritual recordings stored under communal authority rather than corporate servers [43]. Unlike colonial museum restitution, digital repatriation emphasizes intellectual property, spiritual ownership, and the right to restrict or reinterpret content [47]. Queenmother councils in Ghana and Church Mother associations in the U.S. South increasingly demand control over sacred audio, naming rites, and genealogical archives housed in Western institutions [40]. This movement aligns with Afro-diasporic knowledge sovereignty, which asserts that cultural data must remain governed by traditional laws and ancestral ethics rather than state copyright systems [49].

9.2. AI-Driven Educational Curriculums and Leadership Training

AI offers powerful tools for designing culturally grounded educational programs that teach leadership through the philosophies of Queenmothers and Church Mothers [44]. Machine learning can curate oral histories into school modules on mediation, lineage law, and ethical governance [51]. Interactive platforms allow students to analyze proverbs, court dialogues, and church testimonies translated in Twi, Ewe, or AAVE, while still preserving rhetorical tone [52]. Such curricula challenge Eurocentric narratives and instead highlight matriarchal diplomacy, spiritual resilience, and communal economics as models for contemporary leadership training [53].

9.3. Virtual Reality (VR) Palaces and Digital Church Archives

Virtual reality now enables immersive reconstructions of palace courtyards, ancestral stools, and prayer circles, allowing users to experience oral heritage spatially instead of textually [54]. VR applications simulate council meetings, libation rituals, and worship services narrated by living Queen mothers or Church Mothers, preserving gesture, sound, and sacred silence [55]. Digital church archives similarly store testimonies, hymns, and healing ceremonies in interactive form. Figure 4 illustrates the future design of AI-enabled interactive heritage platforms integrating VR palaces, digital church repositories, and community-controlled databases [56]. These innovations must, however, follow cultural consent protocols to avoid turning sacred knowledge into entertainment [57].
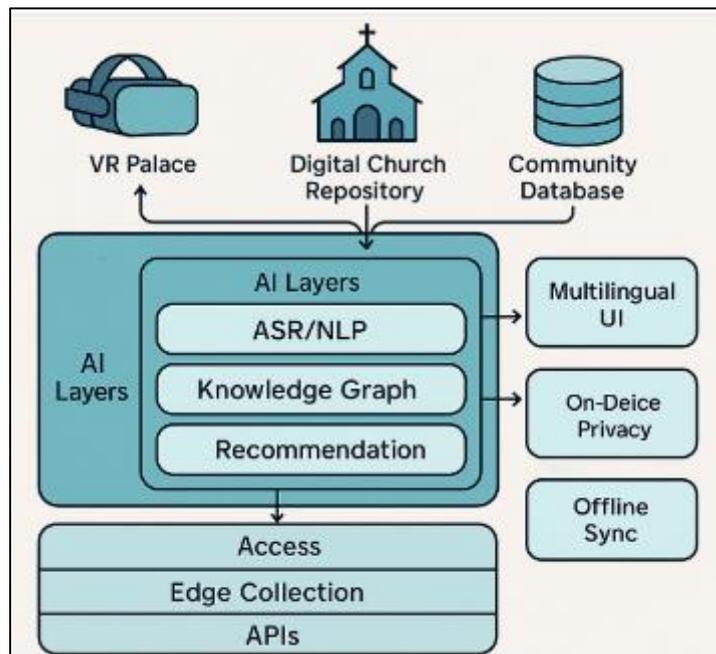
Figure 4 Future design of AI-enabled interactive heritage platforms integrating VR palaces, digital church repositories, and community-controlled databases [45]

10. Conclusion

Summary of Contributions

This study explored how Queenmothers and Church Mothers function as custodians of memory, governance, spirituality, and economic resilience across African and diasporic communities. It demonstrated that oral tradition is not merely a storytelling practice but an epistemological system that transmits law, ethics, lineage, and resistance. By examining historical cases, contemporary interviews, and church testimonies, the paper revealed how women's leadership, though marginalized in written records, persists through ritual, caregiving, and communal authority. It further established that AI tools when ethically developed can help digitize, transcribe, and preserve these oral histories without erasing their cultural nuance.

Implications for History, AI, and Community Resilience

This research positions AI as both an opportunity and a risk for cultural preservation. It offers historians new methods for recovering silenced voices while challenging AI developers to design technologies sensitive to tone, spirituality, and

communal knowledge structures. For communities, digital archives and VR palaces can strengthen intergenerational transmission, support language revitalization, and reinforce identity in the face of globalization. However, without cultural sovereignty and consent, AI risks becoming a digital extension of colonial archiving.

Call for Ethical, Community-Led Digital Memory Work

The future of digital heritage must be community-led. Elders, Queenmothers, Church Mothers, programmers, and educators must collaborate to design archives that honour privacy, ritual boundaries, and ancestral stewardship. Ethical AI in heritage work must prioritize respect over extraction, dialogue over data collection, and restoration over display. Only then can digital memory work become an act of healing, resistance, and continuity.

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