

AI in research support : how librarians can enhance knowledge discoveries

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ABSTRACT

Globally, Artificial Intelligence (AI) has become a transformative force across multiple sectors, including governance, healthcare, and dispute management, offering innovative approaches to problem-solving and social development. However, traditional dispute resolution mechanisms remain important for preserving social cohesion in Africa, though they are hampered by modernization and new technologies. The aim of the study was to find out the use of AI support in Indigenous Knowledge alternative dispute resolution among the Akamba community in Kitui County, Kenya, to enhance peace and development. The specific Objectives were to identify the existing Indigenous Knowledge (IK) methods used in IK-based alternative dispute resolution, to determine community perspectives on the ethical use of AI technology to enhance IK-based dispute resolution, and to develop a framework for AI support in IK-based dispute resolution. A case study research design was used, drawing from Sociotechnical Systems theory and Indigenous Knowledge Systems theory. The researcher applied purposive and snowball sampling techniques to select 25 respondents (traditional elders, chiefs, and community leaders) in 5 selected sub-counties. Semi-structured interviews were used to collect the data. The data was transcribed and thematically analyzed using NVivo 15 software. The results revealed that within the Akamba community, there was a reliance on elders' mediation and family arbitration. The respondents expressed a willingness to adopt AI primarily for the documentation and archiving of indigenous material and for knowledge sharing in general. Despite the potential integration, some moral dilemmas arise, with the majority of the respondents acknowledging data privacy issues and cultural misrepresentation as concerns. The survey ultimately concludes that AI can only supplement human wisdom and not replace it. The research developed a framework integrating AI into the IK alternative dispute resolution process, making it more efficient, stable, and accessible to future generations of the Akamba community in Kitui and beyond.

(Key words: Artificial Intelligence; Indigenous Knowledge; Akamba Community; Dispute resolution)

I. INTRODUCTION

In many African countries, including the Akamba of Kitui County, indigenous Knowledge has been a central pillar in resolving disputes. It is embedded in oral traditions, proverbs, clan-based systems of formations, and elder-mediated resolution. It has been a way for communities to manage problems in interpersonal and family relationships, as well as in land transfers, over the generations (Ayithey, 1991; Mutua, 2001). While vital to legal reforms that increasingly modernize their fundamental role, these traditional systems are being lost to modernization, systems innovation, and the overall legal system (Chikaonda, 2018; Hoppers, 2002). The younger generation is increasingly drawn to formal education and digital culture, leading to the gradual erosion of ancestral traditions and community-based

indigenous dispute-resolution systems (Nhemachena & Mlambo, 2020).

AI offers a new solution to bridge the gap between the old and new systems. AI technologies such as language processing, knowledge management, data storage, data transfer, and even data preservation enable the preservation and facilitation of IK use in dispute resolution (Odora Hoppers, 2002; Tuomi, 2022). These tools can capture elaborate cultural expressions and offer digital platforms for indigenous dispute resolution. For complex cultural dilemmas surrounding indigenous issues, they provide an accessible framework. However, despite the promising power of AI, little has been done to explore its potential in indigenous systems of justice in a manner that is respectful (Letouzé et al., 2020; UNDP, 2021).

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The study explored the feasibility and applicability of AI to assist the Akamba people in Kitui County in using IK in Alternative Dispute Resolution (ADR). As AI emerges, we plan to investigate how it could help with traditional dispute resolution without transgressing cultural practices and traditional community authority frameworks and structures (Maraire, 2024). It has brought both technological advancements and cultural preservation to alternative dispute resolution frameworks in Africa (Letouzé et al., 2020; Tuomi, 2022). This process, developed through the participation of diverse stakeholders, including policymakers, law students, legal experts, and academia, focuses on developing the practice and assessing it through the lens of dispute resolution. And as this case shows, with this approach, there has been a sustainable, inclusive, and fair opportunity to address disputes and advance legal traditions through ethical principles and the technical tools adopted over the years. These AI tools could resemble elder-driven negotiations, assist community mediation, or extract cultural information in easily digestible digital formats. If AI is to be embedded in these strongly cultural contexts, ethical considerations and participatory practices are required to facilitate technological interventions, respect and uphold community principles, and deepen community values (Kovach, 2009; UNDP, 2021). This study specifically investigated an ethically balanced pathway to combine Artificial Intelligence (AI) with the ADR processes of the Akamba community in relevant contexts. The combination of AI and IK procedures facilitates digital inclusion in traditional justice systems and protects the vibrant culture of the Akamba community during dispute resolution.

The aim of the study was to find out how AI supports IK dispute resolution in the Akamba community in Kitui County, Kenya, to promote peace and development. Specifically, the study: identified the existing Indigenous Knowledge (IK) methods utilized in Alternative Dispute Resolution among the Akamba community in Kitui County; found out the community perspectives on the potential areas where AI technology can ethically enhance IK-based dispute resolution; and developed an integrated, culturally sensitive framework for AI support in IK-based dispute resolution.

Significance of Indigenous Knowledge (IK) approaches in conflict resolution within the Akamba Community

IK methods (rituals) are spiritual symbols and social practices important to the Akamba people and should be understood. The rituals mark important life transitions, maintain harmony with ancestral spirits, and reinforce communal values through symbolic actions and structured ceremonies (Mbiti, 1990; Mutiso, 1975;

Wamue-Ngare & Njoroge, 2011). These rituals are pivotal in preserving indigenous knowledge by guiding moral behavior and are therefore an important aspect of Akamba identity. Some of these are Nzaiko (rites of passage), Kilumi (traditional healing and dance rituals), Kuvanda Nthini (sacrifices and offerings), and Ngoma ya Kimwene (blessings and curses and naming ceremonies). They are not only expressions of culture but also deep acts of spirituality and social organization that sustain community morality and cosmology (Mbiti, 1990; Mutiso, 1975).

These rituals strengthen community morals, taboos, and values, and moral education, and they transmit Indigenous Knowledge passed onto future generations (Wamue-Ngare & Njoroge, 2011). Moreover, these ceremonies maintain a holy link between the living and the ancestors, providing spiritual support to generations who may pass into the afterlife and ensuring the community's spiritual credibility is upheld (Peel, 2000). They offer a context for the interpretation and reaction to environmental and social perturbations, for example, drought, sickness, or misfortune, as a critical prism through which to consider religious experiences and social obligations in the face of suffering (Holleman, 1974; Hoppers, 2002). Each ritual move/sign/artifact is heavy on (a) symbolism and non-verbal and (b) loaded with meaning, all rites beyond the physical acts (Turner, 1969). For the Akamba community, at least, symbolic ritual acts are also central to the ongoing survival of Indigenous Knowledge Systems (IKS) for resolving conflict, recovering spiritually, and understanding morally. Rituals help improve social cohesion and offer culturally appropriate solutions to problems, thereby helping maintain peace among the Akamba people.

When the Akamba think of justice and communal identity, rituals serve as a lens through which to observe cultural traditions. For the Akamba living in Kitui, rituals are a key part of everyday life, serving various roles in dispute resolution, religious celebrations, and cultural festivities such as rites of passage. In the context of how IKS are used in dispute resolution, one must first understand the rituals surrounding conflict resolution and their importance to the Akamba people. As technology advances, tools such as AI offer a unique opportunity to document, preserve, and improve the accessibility of these rituals, ensuring that their cultural significance continues to guide future generations while safeguarding their sacred and communal essence.

Among the Akamba community of Kitui County, IK in dispute resolution is rooted in communal values aimed at maintaining truth, justice and social harmony (Mbiti,

1990; Mutiso, 1975). Conducting an Oath is one of these practices and one of the most revered practices, called Kithitu, a ritual that involves testimony and curse from the elder spirits of relatives on falsely accused persons (Lindblom, 1916; Mbiti, 1990). Kithitu is applied in serious matters such as land disputes, theft and marital conflicts. Kivyu (the hot iron ordeal) is a ritual where the accused is asked to hold a hot object to prove innocence; if the accused survives the ordeal without burns, then that becomes a divine confirmation of truth (Mwaniki v Republic of Kenya, 2007). The practice encapsulates entrenched notions of family justice, and spiritual connection between ancestors and the divine as a method of settling disputes.

Another way is the Ngata, which diviners or herbalists provide to disputants to help them assess guilt or innocence based on their physical or spiritual responses (Katola, 2014). It is handed to disputants as one of the ways to find out the truth or to administer curses. Refusal to drink may be interpreted as a formal confession of an offense, with the consequent consequences of possible long-term disease, blindness or deafness, even death serving as punishments and spiritual vengeance. King'ole was once a community punishment (for example, lynching of an alleged witch), in which it remained a cruel punishment not only of the legal variety (i.e., wrong in law but morally unacceptable), but it also represented citizens' social behavior and moral authority against threats to justice (Ndeti, 1972). One of these things illustrates how restorative justice, spiritual supervision, and societal ownership are all forms of the Akamba principle of dispute resolution. Those and some others represent a strongly held belief in spiritual justice, social discipline, and reciprocal responsibilities. Such beliefs are central to the Indigenous Knowledge Systems that underpin the Akamba community's dispute resolution process.

Akamba Indigenous Knowledge methods in dispute resolution

Indigenous Knowledge (IK) represents the accumulated wisdom, practices, and beliefs developed over centuries by communities, shaped by interactions with their cultural and environmental settings (Battiste, 2002). From an African perspective, IK has become integral to local governance, as well as a major driver in dispute resolution and social peace in African contexts.

Dispute resolution in the Akamba community within Kitui County has commonly relied on formalized approaches led by elders, clan leaders, and other respected leaders. These devices tend to focus on

reconciliation through rebuilding and restoration of relationships, and the reintegration of offenders rather than on punishment or stigmatization (Mbiti, 1990). The Akamba have settled disputes through oral discourse, proverbs, metaphors, stories, and references to traditional law across generations.

As mediators and adjudicators, elders called atumia ma ngai or atumia ma kithungo settle disputes in land disputes, family disputes, and inheritance cases. The process is driven by both local communities and public interests to enable transparency, accountability, and consensus (Ndonye & Nthamburi, 2015). They commented that traditional systems of jurisprudence must now be subjected to systematic pressure (from official legal systems) and undergo a generation-wide transition to the Western modern system, given their voluntary nature and the lack of an Act to enforce them. Younger generations in the local community are less interested or trusting in traditional processes, and oral traditions might get lost with the lack of documentation as well. As a result of these challenges, the need to explore different methods for improving the use of IK in dispute resolution while still upholding cultural values arises.

AI tools in support of Indigenous Knowledge in alternative dispute resolution among the Akamba in Kitui county

This study seeks to explore how digital technologies can enhance traditional conflict resolution methods while still sustaining cultural values. This can be done by blending various AI tools with indigenous procedures to resolve local disputes using culturally appropriate approaches.

Natural Language Processing (NLP) for oral traditions

The oral traditions of the Akamba people such as proverbs and folk tales can be safely preserved and accurately translated by NLP tools. Since oral traditions are passed down verbally from one generation to the next, deciphering the exact meaning of phrases becomes difficult because much context can be lost as they are passed down. To preserve the intended meaning of oral traditions, NLP tools can be trained to interpret the metaphorical meanings of phrases and words, as well as to extract accurate cultural meanings, using the recorded wisdom of Akamba elders to inform the analysis of oral traditions, specifically in ADR processes. (Bird, 2020; Letouzé et al., 2020).

By training NPL tools on local dialects, the NPL system helps preserve the intended meaning of oral traditions that might otherwise be lost during translation or recollection by those tasked with carrying them forward. By using AI-powered transcription tools, digital archives of oral testimonies can be created to allow people to search for context-specific records of traditional jurisprudence (Besacier et al., 2014). Other applications are in education, by which young people also become aware of the digital and local context and engage with Indigenous knowledge systems.

AI-Powered knowledge databases

Artificial Intelligence can be used to create intelligent knowledge systems to store and structure Indigenous data, including customary laws, rituals such as kithitu, and historical conflict outcomes from elders' councils. These databases not only conserve traditional knowledge but also present it to formalized organizations and youth, and offer culturally specific ways of resolution (Tuomi, 2022; Hoppers, 2002). As oral traditions become digitized, the shift to digital systems threatens the quality of IK and, specifically, erodes cultural values; AI steps in to offer a safeguard against this (Meighan, 2021). Technology must be utilized such that the tools being created reflect the community identity and strengthen the concept of justice in ADR, this can be achieved by involving local stakeholders. With the rise in smartphone use, online databases could be created to reach people in remote areas where there is no established legal infrastructure to support dispute resolution (Makori, 2020).

Speech recognition tools

Speech recognition tools can use AI to capture dispute resolution proceedings conducted in Kikamba and convert them into English text. These tools will capture the oral traditions and dialogue among Akamba elders in real time and store records of these interactions for future generations. In rural communities, where due to low literacy levels, the primary means of knowledge transfer is oral, the speech recognition AI tools will prove instrumental to them (UNESCO, 2021; Dignum, 2019). Digitizing these spoken traditions helps preserve this knowledge while also keeping indigenous legal systems active. The tools will help create online repositories where users can search the archives for case-specific scenarios, and this functionality will be useful to researchers and community members. The tools can

also be structured to work offline, helping make recordings of speech available when the user gets connectivity again. When the speech recognition tools become optimized, they help communities retain greater autonomy and control over their justice processes (Besacier et al., 2014). Systems for collaboratively designed AI also promote the ethical storage and use of that data, with respect for community ownership and consent (UNESCO, 2021). In the end, speech recognition in Indigenous languages enhances dispute resolution due to transparency, memory retention, and inclusion.

Chatbots or virtual advisors for cultural mediation

AI chatbots/virtual assistants trained on data about Akamba culture and language will provide culturally sensitive guidance on dispute resolution. Tools such as these may suggest specific rituals, recommend which elder to consult, or replicate traditional mediation processes that provide accessible, community-based responses, particularly in remote or digitally connected environments (Vinuesa et al., 2020; McGregor et al., 2021).

When AI tools are ethically designed and implemented with significant community involvement, the tools help to enhance the relevance, accessibility, and integrity of IKS systems in dispute resolution among the Akamba people in Kitui County

Because so much of indigenous knowledge is passed down orally, NLP tools can parse conversations, extract meaning from metaphors, and preserve traditional expressions. This prevents the loss of knowledge that elders or Kikamba mediators would carry with them and that could potentially be applied to future conflict resolution activities.

AI in knowledge preservation and enhancement

Artificial Intelligence (AI), defined as machine systems capable of performing functions requiring human intelligence, has been used in fields such as health, agriculture, education, and most recently cultural preservation. Tools like Natural Language Processing (NLP), expert systems, machine learning, and knowledge systems are increasingly moving beyond traditional knowledge generation to document, interpret, and reflect human knowledge, such as IK (Tripathi & Bhatt, 2021). AI supports digitizing oral histories, constructing virtual knowledge bases, and establishing AI-based decision support systems that incorporate traditional logic and

reasoning. AI has been used in Indigenous contexts to store and archive indigenous languages, record rituals and customs, and simulate ecological knowledge systems (UNESCO, 2020). For instance, NLP solutions for the digitization and analysis of indigenous African proverbs to preserve cultural wisdom have been developed using NLP technologies (Chikuni et al., 2022). Instead of replacing established methods of dispute resolution, AI can enhance these processes by making them more accessible and consistent with the Akamba people of Kitui. This can be done, for example, by creating virtual platforms where mediation groups can connect and discuss matters online across vast geographical distances. Dispute resolution proceedings can be recorded with automated transcription enabled, so they can be organized and accurately stored. The integration of AI, however, must be done under strict ethical safeguards, because without careful oversight, AI could distort or even misrepresent indigenous customs rather than preserve them.

Ethical and cultural considerations in AI integration

There are ethical risks when introducing new technologies into indigenous practices. This is usually the case because much AI technology is built on Western epistemology, and many large language models are trained on Western academic writing, which often clashes with indigenous worldviews (Mohamed et al., 2020).

Ethical AI integration, therefore, involves co-creation with stakeholders, as well as the communal consent of elders in that community. In the digitization of, for example, oral traditions, it is imperative that community members control the entire process to ensure that the final output accurately reflects communal values and cultural beliefs. Doing this helps avoid cultural misappropriation, in which indigenous knowledge is extracted without benefiting the source community (Kukutai & Taylor, 2016). For the Akamba people specifically, AI tools must be built respecting the local social structures and utilizing the established decision-making models so that the end goal is a technology that conserves indigenous practices while simultaneously amplifying human judgment.

Bridging AI and IK in the Akamba context

Research shows that combining new technologies with traditional knowledge systems is achievable,

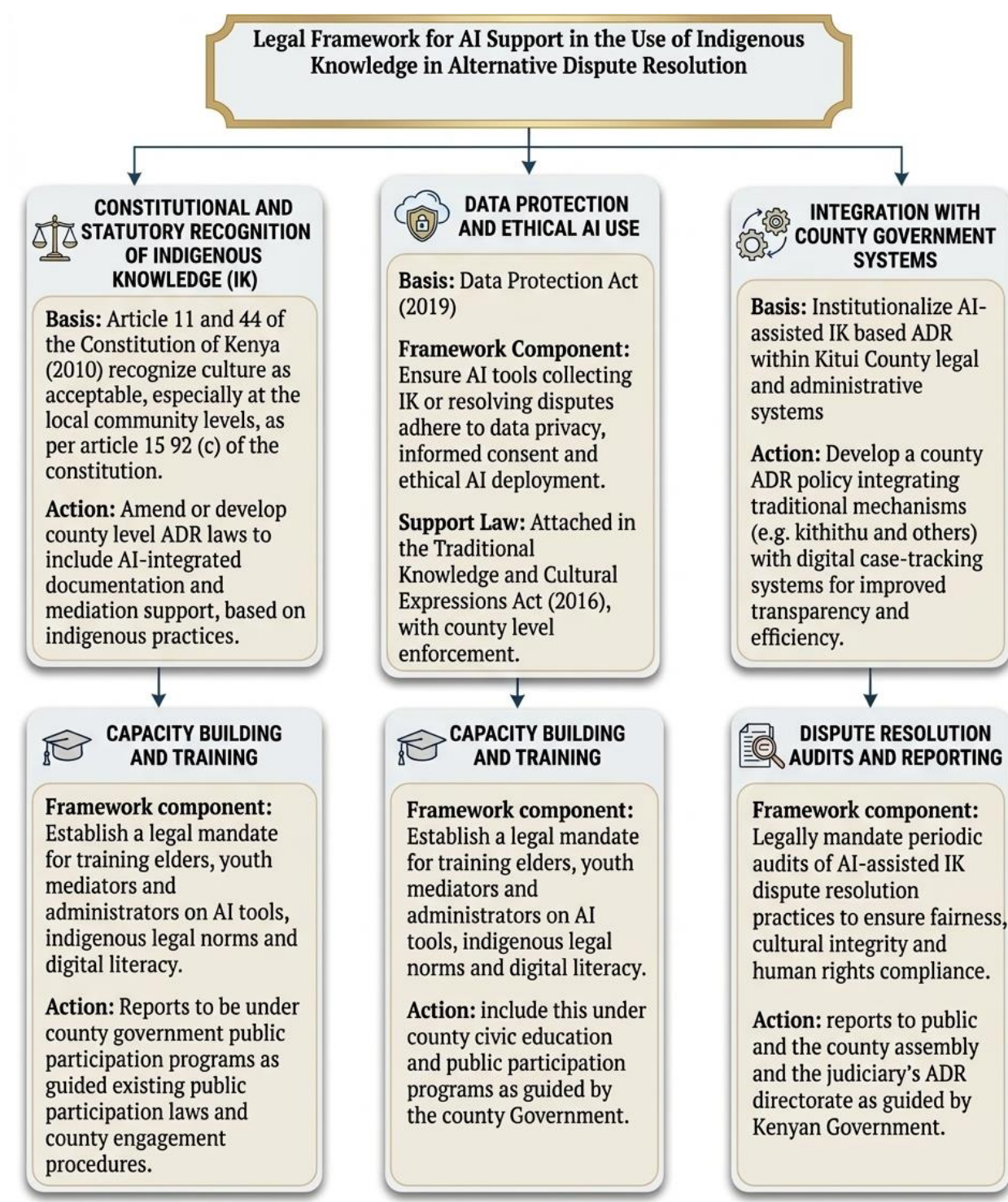
provided they are approached in participatory ways and grounded in cultural context (Kovach, 2009; Odora Hoppers, 2002). In addition, digital initiatives in other parts of Africa have been adept at documenting and preserving Indigenous dispute resolution processes, reflecting how technological advancement can enhance the visibility and utility of customary systems while respecting their cultural essence (WIPO, 2022b; UNESCO, 2021). However, they identify a lack of community-focused initiatives dedicated to Kitui County's Akamba people.

Adequate application of AI for the Akamba people in dispute resolution depends on in-depth knowledge of the IK integral to justice-based practice in those areas. These encompass mediation processes, the contribution of elders, the symbolic employment of language and proverbs, and the communal logic of decision-making (Mbiti, 1990; Ndeti, 1972). The cultural context in which this AI-enabled tool is based is vital because it forms the basis for other AI-enabled tools that could potentially be built as digital case archives, virtual mediation assistants, or machine learning models trained on traditional wisdom (Tuomi, 2022; Bird, 2020).

The primary challenge, though, is ensuring that such methods are developed through inclusive community involvement, with mechanisms that enable continuous feedback and cultural validation. For example, proverbs written into any AI system demand both linguistic precision and a deep appreciation of cultural nuance (McGregor et al., 2021). The ethical concerns regarding data ownership and consent must be addressed to ensure that the benefits of new technologies remain within the community and are not exploited by outsiders (Dignum, 2019; UNDP, 2021).

Legal framework for ai support in the use of Indigenous Knowledge in dispute resolution

The proposed legal framework on the following page ensures that AI integration into dispute resolution aligns with the Constitution of Kenya. It also ensures that the tools created are owned by the Akamba community and used in conjunction with the Kitui County Government structures, thus creating a secure environment for technological innovation that upholds traditional justice systems.

Figure 1: Legal Framework for AI Support in the use of Indigenous Knowledge in Alternative Dispute Resolution¹¹ Source: Researcher, (2026)

Theoretical framework

For this research, two theories were selected to demonstrate how an AI framework can be designed to strengthen ADR rather than replace traditional dispute resolution methods. The first is the Sociotechnical Systems Theory (STS), and the other is the Indigenous Knowledge Systems (IKS). Together, the two theories connect technology to culture.

The STS theory argues that for an AI system to be effective, it needs to integrate with existing social norms and communal practices. On the other hand, the IKS theory emphasizes the importance of local knowledge and traditional problem-solving techniques. When both theories are blended, we find that STS seeks to ensure that technology actually serves the society that uses it, while IKS seeks to ensure that cultural authenticity is safeguarded, especially when using community justice practices.

II. METHODOLOGY

The study utilized a qualitative research design and was grounded in the constructivist paradigm. This research sought to investigate how AI can be used to support ADR processes among the Akamba people by using IK. The study targeted the custodians of IK systems within the Akamba community, specifically the elders (atumia ma ngai), local chiefs, and active community leaders from five selected sub-counties in Kitui County. The study population was chosen specifically for their cultural authority and practical experience with local mediation. To reach the target population, this study used purposive and snowball sampling techniques to select and engage 25 informants. The study employed semi-structured questionnaires to collect information on IK methods, ethics, and the effective use of AI in dispute resolution. Although the initial target group of 25 IK custodians were contacted for the study, only 21 responded and completed the interviews, establishing the final sample size at $n=21$. The sample size ($n=21$) is very selective; the qualitative method in the present research lends itself to a focus on data saturation and insights from targeted custodians of specialized knowledge rather than on ensuring statistical representativeness. Interview audio recordings were transcribed verbatim into textual data. Thereafter, the transcripts were imported into NVivo 15 software, where thematic analysis was performed for text-based coding of the analyses, identification of recurring patterns, and elucidation of the dominant themes for the findings.

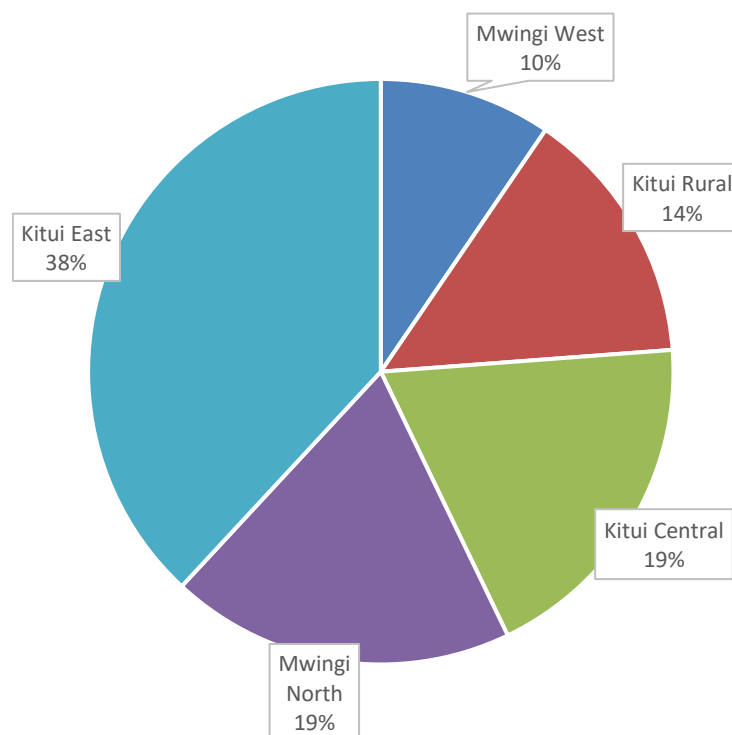
III. STUDY RESULTS

Based on the research findings, we found that the Akamba community uses complex Indigenous Knowledge systems, defined by mutual dialogue, respect for elders, reconciliation, and moral rebuilding. Participants also stressed the need to keep the values aligned with the role of modern tools in making conflict resolution easier, more efficient, and transparent. The results enabled this study to develop a framework for integrating AI technology into IK systems. The framework promotes culturally informed and community-driven methods of ADR. The findings reveal that AI, rather than erasing traditional ways of life, can help preserve them and ultimately serve as a tool that sustains indigenous practices for future generations.

Demographic characteristics of the respondents

To ensure an objective representation of the Akamba people, the study recruited respondents from both rural and urban areas. Figure 2 below shows the distribution of respondents across the 5 selected Kitui sub-counties: Kitui East, Kitui Rural, Kitui Central, Mwingi West and Mwingi North.

Figure 2: Respondents distribution by sub-county ($n=21$)²



² Source: Researcher

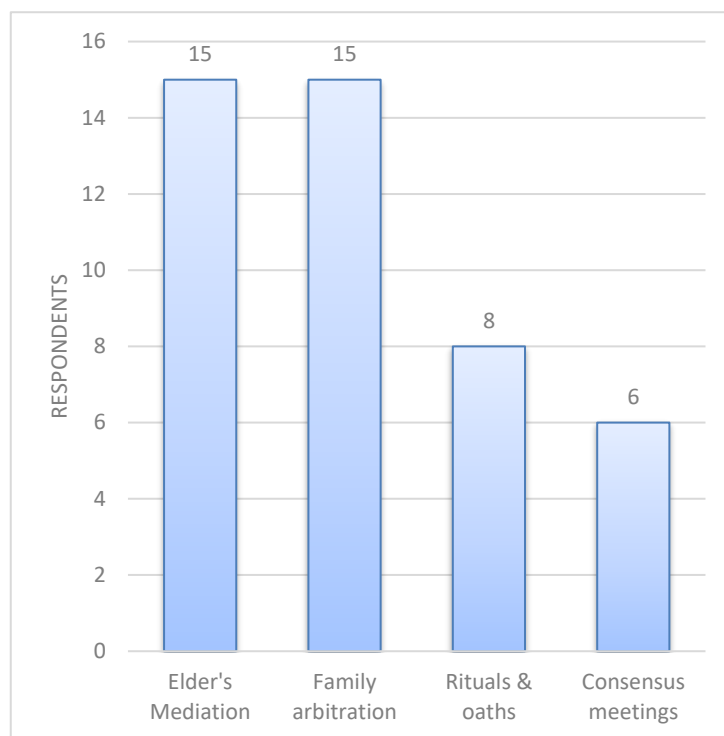
Respondent participation was highest in Kitui East with 8 (38.1%) while the remaining respondents were distributed relatively evenly across the other 4 sub-counties of Kitui Central with 4 (19%), Mwingi North with 4 (19%), Kitui Rural with 3 (14.3%), and Mwingi West with 2 (9.5%). The choice of the five regions was deliberate to ensure the sample was more representative of the various social norms and cultural differences of the Akamba people living in Kitui County and to accurately capture them. For example, Kitui East was selected because traditional leadership structures are prevalent and IK is widely used in ADR there, while Kitui Rural was selected because traditional practices and ADR methods are widely practiced by the communities living there. (Ndiku and Muthami, 202; Muoki et al., 2023). Mwingi North is mostly semi-arid and relies heavily on indigenous systems, while Kitui Central is more urbanized and offers a unique perspective on how modernization affects the significance of indigenous dispute resolution mechanisms. Together, these five areas offer a comprehensive, holistic view of IK utilization across Kitui County.

It was noted that a majority of the respondents were male, due to the historically patriarchal nature of the Akamba traditional elder councils. Most of the respondents were over 55 and had decades of experience and knowledge in community governance. Respondents' educational qualifications differed: urban administrative chiefs had a high proportion of formal tertiary education, whereas the average rural elder had no formal education and relied solely on oral traditions.

IK methods for Alternative Dispute Resolution in the Akamba community

Respondents were asked to indicate common IK methods for ADR in the Akamba community. Figure 3 shows the most common Akamba classical methods of dispute resolution.

Figure 3: Common IK methods in Akamba dispute resolution³



Respondents were allowed to pick more than one option, and the results showed that 15 (71.4%) respondents mentioned mediation by elders and family arbitration as the most common form of alternative dispute resolution, indicating the authority and moral clout of elders in brokering differences as well as the importance of involving family in dispute resolution. About 8 (38.1%) respondents mentioned rituals and oaths as ADR methods, signaling the invocation of cultural symbolism in the pursuit of truth and reconciliation. About 6 (28.6%) respondents identified consensus meetings in which the community resolves disputes through open debate. Lastly, 1 respondent (4.8%) mentioned other influences at the time, such as church or community leadership. The consensus was that elders are integral to maintaining social cohesion and that IK systems are highly relevant to dispute resolution. The study's first objective was to identify existing IK methods in dispute resolution, and respondents identified elders as key mediators of disputes. These elders draw heavily on passed-down oral traditions and customary norms to offer wisdom when handling disputes. The respondents explained that disputes were often resolved through dialogue and mutual agreements, and, in more serious cases, rituals were performed to prioritize reconciliation over punishment. In this context, the elders served not only as mediators but also as a moral compass for the community, eventually

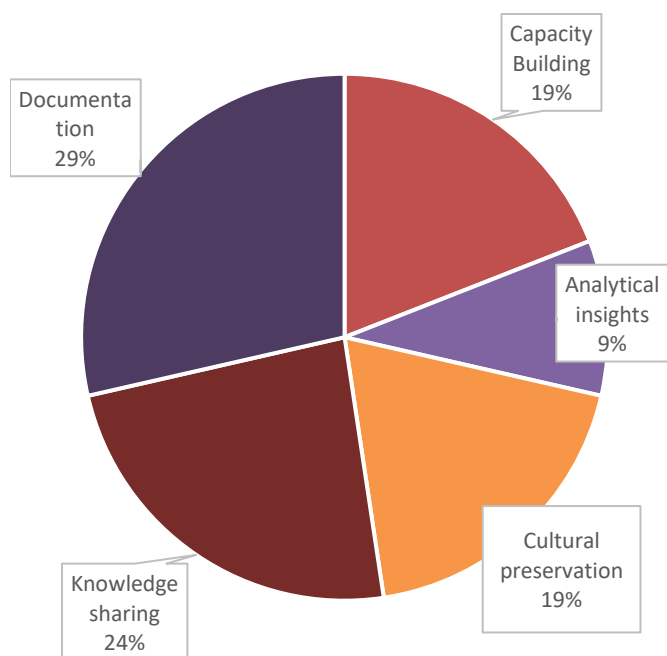
³ **Source:** Field research

restoring social balance between disputing families. Respondents highlighted that, since the indigenous methods were anchored in respect and mutual trust, community members would often accept the elders' decision. Lastly, the respondents revealed that while elders served a pivotal role in dispute resolution, the limitations of consistency and accurate documentation arose, challenging the applicability of indigenous methods in modern contexts. These gaps are areas where AI could potentially help if applied with appropriate cultural awareness.

Enhancement of IK-Based Dispute Resolution using AI technology

Figure 4 illustrates the opinion of the respondents as to how AI technology can enhance IK-based dispute resolution.

Figure 4: Areas where AI could support IK practices (n=21)⁴



From the findings, 6 (27.3%) respondents chose documentation and archiving, stating that AI technology

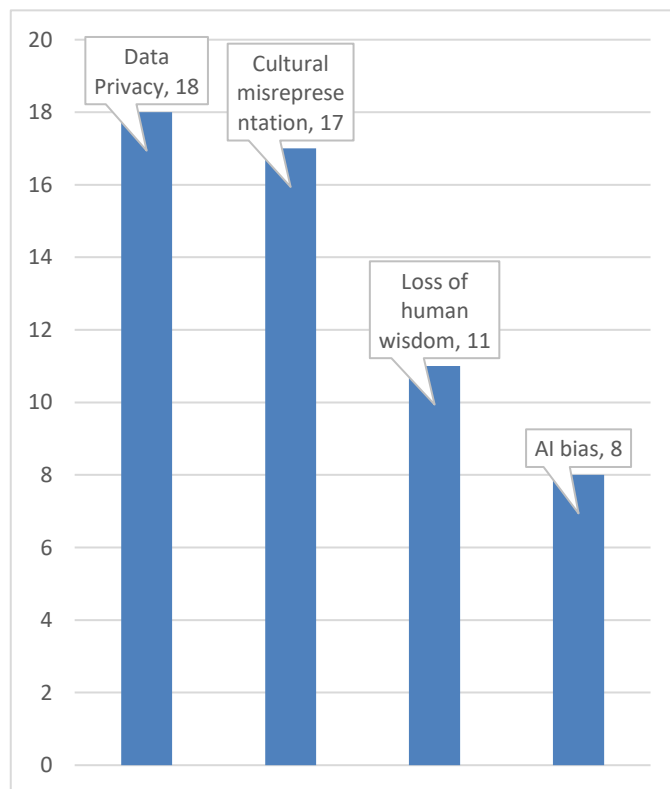
⁴ **Source:** Field research

can help maintain records of customary cases and processes for generations to come. Improving access through knowledge sharing was selected by 5 (22.7%) respondents, explaining that AI can provide easier access to indigenous processes via online interfaces and repositories. The results also revealed that 4 (18.2%) respondents believed AI can be used for capacity building, while another 4 (18.2%) preferred its use for cultural preservation. Lastly, 2 (9.1%) respondents suggested that AI can be used for analytical insights, aiding elders by identifying repetitive patterns to support decision-making, and 1 respondent stated other uses, such as awareness and training. The graph clearly indicates that respondents would rather have AI used in a facilitator role for recording and completing traditional forms, rather than replacing them.

Ethical considerations about AI in IK-based Dispute Resolution

Figure 5 presents the major ethical concerns raised by respondents regarding AI adoption.

Figure 5: Ethical Concerns about AI in IK based Dispute Resolution (n=21)⁵



This survey question allowed a single respondent to select multiple options. The most identified issue was data privacy and security, expressed by 18 (85.8%)

⁵ **Source:** Field research

respondents, with concerns that sensitive cultural knowledge would be compromised or misused. Cultural misrepresentation was the second most widely reported concern, with 17 (80%) respondents fearing that AI would misrepresent indigenous values or rituals. The findings revealed that 11 (52.4%) respondents were worried about elders losing their authority because overreliance on digital tools would sideline them. Another 8 (38.1%) respondents cited concerns about AI biases, explaining that algorithms would not be able to capture cultural nuances as accurately as elders would. As the findings illustrate, any AI tools created for the Akamba people must be developed in collaboration with relevant stakeholders to avoid undermining indigenous justice traditions. The study's second objective was to establish a practical format for how AI can assist IK-based conflict resolution, and most respondents were open to adopting new tools as long as the community values were respected and observed in the creation of these tools. Respondents revealed that AI can be used to digitize and archive oral traditions to preserve local knowledge. Respondents believe that AI could be used to create digital records of how previous disputes were handled and generate insights that would improve the mediation processes. Key concerns cited by respondents include data privacy of the mediated cases and cultural misrepresentation in the process of digitizing proceedings. The findings indicated that AI must serve only as a supplementary aid to indigenous practices and must not replace the established procedures of handling conflict.

Proposed framework for AI-IK integration

The third objective was to develop a framework to help integrate AI into the existing dispute resolution systems of the Akamba people. Based on the survey findings, the suggested framework is culturally sensitive and proposes the use of AI tools across three core functions: the digitization of oral traditions; real-time transcription and assistance in mediations; and the application of pattern recognition technologies to disputes to help provide remedies. Guided by strict data protection measures, the framework ensures that technology serves primarily in an administrative role, while final decision-making will be left to the elders.

The results were generally optimistic about the continuity of indigenous and local institutions in handling disputes within the Akamba community. The current traditional dispute resolution mechanisms remain very resilient, and the elders show a willingness to adopt new technology provided the technologies are co-created and ethically bound to the Akamba traditions. The proposed

framework should ultimately position technology as a partner to local traditions, ensuring that modernization can sustain and reinforce indigenous wisdom within the Akamba community justice systems.

IV. DISCUSSION OF FINDINGS

Existing literature confirms that IK systems remain deeply embedded in the practices of the Akamba people and that they remain highly relevant in modern dispute resolution procedures (Dei, 2011; Letseka, 2022). At the same time, scholars are increasingly recognizing the role AI can play in documenting, preserving, and improving these traditional practices (UNESCO, 2023; Mohanty & Vyas, 2023). For the effective integration of AI, it should be designed and implemented in a manner that is ethical and culturally appropriate for the local community (Kerr & Barabas, 2022). This demands collaboration among elders, IK custodians, and developers to ensure that the resulting tools accurately reflect the local norms of the people they serve.

Technology ought to amplify existing indigenous processes rather than replace them, as this ensures that knowledge transmission from one generation to the next is accurate and effective (Hoppers, 2002). To achieve this, there must be clear controls on data access to protect the community's intellectual property rights. In addition, the developed technologies must be adaptable enough to account for cultural development while remaining relevant to dispute resolution efforts. Consequently, the use of IK in AI processes is delicate and must be managed carefully to provide opportunities for justice and social inclusion for the Akamba people.

V. CONCLUSION

This study confirms that indigenous Knowledge systems created by elders and incorporated into the culture of the Akamba are a key pillar of alternative dispute resolution in Kitui County. Although the advance of this process poses a challenge to the viability of these practices, Artificial Intelligence emerges as an attractive socio-technical solution. AI-assisted practitioners who use AI tools solely to document the research process, provide analytical support, and facilitate knowledge sharing, and who have strict mechanisms to ensure data privacy, can also boost the efficiency of routine dispute resolution systems without compromising their sacred authority. Last but not least, the successful fusion between AI and IK relies on a principled community-based ecosystem that prioritizes technologically inclusive engagement while preserving Kenya's rich inheritance of restorative justice and dispute resolution.

VI. RECOMMENDATIONS

Artificial Intelligence (AI) is intended to complement traditional dispute resolution by supplementing it, as is its role in the provision of support (UNESCO, 2023). Supporting the AI implemented in this manner, Indigenous Knowledge (IK) practices will need to be explicitly described as it is fundamental to safeguarding cultural identity, independence and community trust (Kerr & Barabas, 2022). If the Akamba in Kitui County continue to apply AI ethically, Kamba society will remain anchored in values and perspectives that form the basis of indigenous worldview in order to sustain, address the practicalities and philosophical benefits of these alternative settlement practices in their own societies.

AI developers, as well as policymakers and custodians of Indigenous Knowledge, need to work together towards ensuring these effects are considered. This

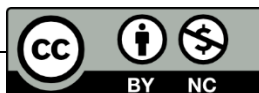
recommendation is consistent with Kenyan National Culture and Heritage Bill (2021) to strengthen the protection of Indigenous Knowledge systems, as well as the National Digital Master Plan (2022–2032) which stresses extensive digital diversity in all aspects of innovation (Republic of Kenya, 2021; 2022). Local capacities development is key to turning communities from passive consumers of AI technologies into co makers of them. Moreover, this aligns with SDG 16 (Peace, Justice and Strong Institutions) which encourages community-based and responsible justice and SDG 9 (Industry, Innovation, and Infrastructure) which facilitates innovations which are locally relevant and sustainable (UN, 2023). Sustained engagement through participatory research, culturally appropriate technology design, and inclusive governance structures will be critical for developing a robust, people-centric AI-IK framework.

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