



WILL THE KNOWLEDGE SURVIVE? DIGITAL TRANSFORMATION AND THE TRANSMISSION OF INDIGENOUS MEDICAL KNOWLEDGE IN CONTEMPORARY AFRICAN SOCIETIES

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ABSTRACT

Background: The growing proliferation of digital technology is changing the production, storing and transfer of knowledge across society. These changes do indeed provide opportunities to preserve indigenous knowledge, but they also raise critical questions about the transformation, the ownership and the survival of indigenous knowledge. In Africa, the indigenous medical knowledge continues to be an essential part of healthcare, though traditional ways of knowledge transmission are threatened with extinction.

Methods: This research employs a theoretical and conceptual lens based on medical sociology utilizing Foucault's related power/knowledge framework, the notion of digital colonialism, and the social construction of knowledge, the paper critically analyzes the interface of digitalization and traditional medical knowledge systems.

Results: Digital transformation improves the preservation, access, and scalability of indigenous knowledge, but at the same time makes it vulnerable to loss of knowledge, misappropriation, decontextualization. Such threats are further exacerbated by global digital power imbalances that may give rise to forms of epistemic extraction and digital colonialism.



Conclusion: Indigenous medical knowledge is only able to survive through inclusive, ethical and context-sensitive digital frameworks development. Hybrid knowledge systems, ethical AI practices and digital sovereignty are identified as enablers to ensure that digital transformation supports rather than undermines indigenous knowledge system.

Keywords: Digital Transformation, Indigenous Medical Knowledge, Knowledge Transmission, Digital Colonialism

INTRODUCTION

With the expansion of digital technologies, the way knowledge is generated, captured and shared among the people in a society has been greatly transformed. Such as artificial intelligence and big data platforms, mobile platforms and digital repositories, today knowledge systems are more and more enmeshed in technological infrastructures that foreground codification, scalability and global availability (Ikhoyameh et al, 2020; Dvouletý et al, 2025; Ho et al, 2025;). Although, they have generated unprecedented possibilities for preserving and sharing knowledge, they also posed profound questions concerning whose knowledge is saved, how it is presented and under what conditions it can continue.

In African communities, the indigenous medical savoir-faire was a crucial and aspirational aspect of cultural and epistemic heritage. Indigenous medical knowledge is a form of local knowledge accumulated by way of lived experience, oral traditions and practices within communities, and is integral to the provision of healthcare, especially in places where contact with formal biomedical systems is minimal (Awal, 2024; Gontor, 2025; Ezewudo, 2026). Indigenous medical knowledge is also more than a collection of therapeutic procedures; it is situated within larger systems of meaning that relate health, spirituality, environment and social relations. It is traditionally transmitted in a relational, context-specific, and sometimes esoteric manner within particular lineages or communities.

Nevertheless, the mechanisms of indigenous medical knowledge transmission are increasingly under threat. Urbanization, globalization and generational change, along with reduced use of indigenous languages, have interrupted traditional modes of knowledge transfer, especially oral and apprenticeship systems (Fernando et al, 2024; Schmitt et al, 2024; Liu, 2025). As younger generations are drawn into formal school systems and digital cultures, the survival of systems of indigenous knowledge is in significant doubt. The question is not whether this knowledge is valuable, but whether it can survive in its customized forms.

Digital transformation has been touted as the answer to this dilemma. Digitization efforts, mobile health platforms, and knowledge banks provide novel means of capturing and conserving indigenous knowledge, potentially taking it beyond local communities (Arabiun et al, 2023; Mienya et al, 2024; Nweke 2024; Jabar et al, 2025). In principle, digital technologies can preserve lost knowledge by converting it into permanent records and by facilitating wider dissemination. Yet, this optimism must be questioned.

From a sociological perspective, digital transformation should not be understood as a simple technocratic process of technological development but rather as a rearticulation of power, knowledge, and representation (Adeyinka et al, 2025; Anti & Awanda, 2025; Mukwerete & Ndinde, 2025; Perera et al, 2025). The process for transforming TK into digital products can also involve the simplification, standardization and decontextualization of TK which results in the TK losing its cultural meaning and embeddedness. Additionally, the digital capture of Indigenous knowledge raises questions of ownership, control, and commodification, especially



when global data systems are controlled by actors external to the communities that are the repositories of such knowledge.

These tensions point at a coarse-grained paradox: digital technologies may increase the documentation and conservation of indigenous medical knowledge yet, at the same time, may be used to alter, commodify or erode that knowledge. The persistence of indigenous knowledge, then, is not one of just technical ability, but is understood as a process in which cultural practices, institutional formations, and power relations intersect in the production, access, and governance of knowledge.

Research on digital transformation has predominantly focused on implications at the organization and economy levels, with scant attention to its impact on indigenous knowledge systems, and in the context of Africa more so (Reis & Melao, 2023; Narne, 2023; Westergren et al, 2024). Like research on indigenous knowledge, the literature on preservation and cultural aspects of knowledge has not yet fully explored the disruptive and transformative impact of digital technologies (Dei et al, 2025; Martini & Sgambato, 2025; Neviana et al, 2026). There is still a large theoretical void related to digital transformation, transmission of knowledge, and sociocultural sustainability.

This paper helps to address this void by critically examining the so-what of inscribing indigenous medical knowledge the age of digital on in contemporary African contexts. Based on sociological perspectives of knowledge, power, and technology change, this analysis examines the potentials and dangers of digitizing traditional knowledge systems. It questions if the digital turn is instrumented as an instrument of recovery, a means of transformation or an agent of loss in knowledge. The paper, therefore, makes a contribution to current discussions around digital inclusion, cultural sustainability and knowledge governance in the age of the digital.

CONCEPTUAL FOUNDATIONS

Digital Transformation

Digital transformation is the result of the exploitation of digital technology in a particular organization or in the society and culture within which it operates, leading to changes in its processes or delivery of services. It is not simply the "digitizing" of data, but a metamorphosis of organizational structures, business processes, and value systems through the application of technologies such as artificial intelligence, data analytics, cloud computing, and mobile platforms (Ijatuyi et al, 2025).

Transformation in the digital age is about converting tacit, situated know-how into codified, digital know-what that can be disseminated and scaled. This make-believe allows you greater access to knowledge and allows you to store knowledge and memory over time and to preserve them space but they did not allow you to share details. But there are also different kinds of mediation introduced by digital systems, knowledge must be formatted, classified, standardized to be digital systems (Dei et al, 2025).

From the sociological point of view, digital transformation is not simply a technical process with the same techno-informational determinism effects on the society, but rather it is a process that restructures power relations and knowledge hierarchies. What knowledge is collected, how it is represented, and who can access that knowledge is shaped by digital infrastructures (Ijatuyi et al, 2025). This means that while digital transformation is opening up new options



for storing knowledge, it is also creating new possibilities for being shut out of that knowledge, or having it distorted, or having it taken.

As regards indigenous medical knowledge, the digital transformation raises fundamental concerns as to whether forms of knowing reliant on technological mediation are compatible with culturally based ways of knowing. Although, digital technologies can enable the recording and preservation of knowledge, they may also transform the meaning, ownership, and sharing of knowledge that is primarily experiential, relational, and tied to place.

Indigenous Knowledge Systems

Indigenous knowledge systems are intricately linked with local environments and ways of life; they represent a body of knowledge developed by a local community over time and passed down from generation to generation. They cover many areas of human knowledge, such as traditional medicine, agriculture, resource management, and social organization, and are generally conveyed from one generation to the next via oral traditions, observation, and apprenticeship (Jama et al, 2023).

In particular, traditional medical knowledge is holistic, encompassing the physical, spiritual, social and environmental aspects of health of an individual. Indigenous constructs of health and illness differ from the biomedical model, which compartmentalizes disease to the body, in contrast to tribal models, in which disease is understood in wider cultural and cosmological contexts. Healing may therefore include herbal remedies, but also rituals, spiritual interventions and social matters.

The unique feature of traditional knowledge systems is that they exist within cultural and social specifics. Knowing this information can be helpful when interacting with native and non-native group members who know this stuff is often accessibly owned, situationally utilized, and limited to certain people by age, gender, lineage, or social roles. This cultural context of indigenous knowledge makes it very flexible and appropriate for its environment, but also elusive when the question of systematizing or codifying within the formal system arises (Saxena & Rao, 2023).

Indigenous knowledge systems are being challenged in modern African society as a result of globalization, urbanization and formal education systems that celebrates western ways of knowing. These have undermined traditional ways of passing on knowledge, and there is anxiety about the viability of traditional healing practice knowledge (Mwaka et al, 2023; Caviedes et al, 2024).

Knowledge Transmission Theory

Knowledge production theory addresses the production, dissemination and perpetuation of knowledge within and across generations. In non-industrialized societies the transmission of knowledge is primarily social, experiential, and relational and through means such as storytelling, apprenticeship, imitation, and involvement in community activities (Smart, 2019).

One important choice that distinguishes knowledge transfer is that of tacit versus explicit knowledge. Tacit knowledge is personal and embedded in context; it is difficult to codify and is often found in skills, experiences and practices. In contrast, explicit knowledge is codified, documented, and can be easily transferred through formal channels such as books or via electronic media (Kimble & Mana, 2013).



Indigenous medical knowledge is mostly tacit, based on experience, intuition, and culturally bound ways of doing things. It is frequently a limited and controlled transfer of knowledge, with levels of knowledge being shared within trusted relationship or community clusters. This type of transmission maintains contextual integrity, but is not scalable neither transferable.

Digital transformation contributes to a process of knowledge conversion from tacit to explicit as experiential and relational knowledge is encoded into digital forms (Zamiri&Esmaeli, 2024). Although, this valorization of accessibility and durability changes knowledge itself, as a form of media. Codification could result in the loss of contextual subtleties, meanings and practices associated with data that cannot be easily reconstituted in digitally (Mhlongo et al, 2023).

Therefore, the interplay of the digital transformation process and the indigenous knowledge transfer situate a critical contradictory element. On the one hand, digital tools help to save knowledge that is disappearing slowly. Yet, digital tools may well undermine traditional systems of transmission, and transform knowledge in ways that call into question its authenticity; who thinks, owns, and controls knowledge?

THEORETICAL FRAMEWORK

Foucault's Power/Knowledge Framework

Foucault's power/knowledge serves as a powerful analytic for examining the production, legitimation, and regulation of systems of knowledge within societies. Foucault (Nwadinihu, 2025) demonstrates that knowledge is not neutral neither when it is produced as well as when it is used or applied in institutions, discourses or practices(Hauguard,2022). What is recognized as "valid knowledge" is shaped by hegemonic forces that determine truth, legitimacy, and authority.

In the case of traditional medical knowledge (TMK), this theoretical lens offers an insight into why indigenous ways of knowing have historically, and continue to be, marginalized. Colonial and postcolonial regimes have granted precedence to biomedicine as scientific and universal, while marking indigenous knowledge as non-scientific or subaltern. Digitalization is extending these trends by inscribing knowing in technological systems that favor standardization, codification, and scalability.

Therefore, the conversion to digital form of indigenous medical knowledge is not simply a technical matter but a political one. What knowledge is digitized, how it is classified, and who has access are decisions that reflect power relations. Digital platforms can, therefore, end up reproducing hierarchies by giving privilege to certain types of knowledge and excluding others.

Digital Colonialism

The idea of digital colonialism builds on classical colonial theory and, among other things, considers how global digital infrastructure allows for the rearticulation of patterns of domination and exploitation (Neuberger et al, 2023). Digital colonialism is the expropriation, commodification, and privatization of data, knowledge, and cultural resources of marginalized communities by external agents, frequently without any share in benefit or consent. Is digital colonialism an issue? Does it have relevance to Indigenous medical knowledge?

The documentation and digitization of indigenous knowledge can result in the knowledge being taken over by international pharmaceutical companies, research organizations or digital



corporations. After it has been digitized, knowledge can be separated from its cultural source and used in ways that may not help the community that created it.

In addition, digital systems tend to function within global power imbalances, in which African knowledge systems are inserted into platforms developed and managed in other parts of the world. This can lead to forms of epistemic extraction, whereby knowledge is expropriated, standardized, and recirculated without any retention of the cultural context or local custodianship.

In that sense, digital transformation can be used as a means of preservation as well as expropriation. The digitizing of indigenous knowledge is thus not just a matter of survival in the physical sense, but also in terms of control, governance, and digital sovereignty.

Social Construction of Knowledge

The perspective of the social construction of knowledge argues that the production, maintenance and transmission, and nature of knowledge are all influenced by social interactions, cultural practices and the negotiation of shared meanings (Berger & Luckmann, 1966). Knowledge is not passively discovered, but actively built, within particular social settings. In this way, knowledge is influenced by values, beliefs and institutional arrangements. Such an approach is demonstrated by indigenous medical knowledge. It is so deeply entrenched in cultural stories, rituals and community that the etic meaning cannot fully comprehend or separate from the social contexts where it is produced and shared. Healing, for instance, is inextricable, for some, from spiritual beliefs, moral codes, and social ties.

When knowledge is converted into digital form it is disembodied from its own social context, then re-embedded into technological system. The codification of knowledge can transform the nature and the use of knowledge, as it translates tacit, practice-based knowledge from contextual activities into explicit knowledge.

1. The social constructionist view, then, underscores a critical tension: digital technologies are promoting the spread of knowledge, but possibly interfering with the social means through which knowledge is constructed and maintained. 2. The continuation of indigenous medical knowledge rests not merely upon its documentation, but also in the conservation of the social milieus that make it meaningful.

Integrated Theoretical Perspective

In combination, the three theoretical perspectives offer a solid foundation for a discussion on the potential trajectories of indigenous medical knowledge in a digital world.

- Through Foucault's power/knowledge, digital technologies determine what counts as knowledge and are recognized as knowledge.
- Digital colonialism exposes dangers of extraction, appropriation, and uneven power relations
- Social construction of knowledge draws attention to the cultural context as well as social interactions are key to maintaining knowledge

From these angles, digital transformation is neither inherently good nor bad. Instead, the effect is determined by the manner in which it is governed, by who exercises authority over it, and whether it reinforces or challenges the social and cultural basis of systems of knowledge. The theoretical framework that directs this study is depicted in Figure 1, demonstrating the interplay between digital transformation, power relations, and knowledge systems.

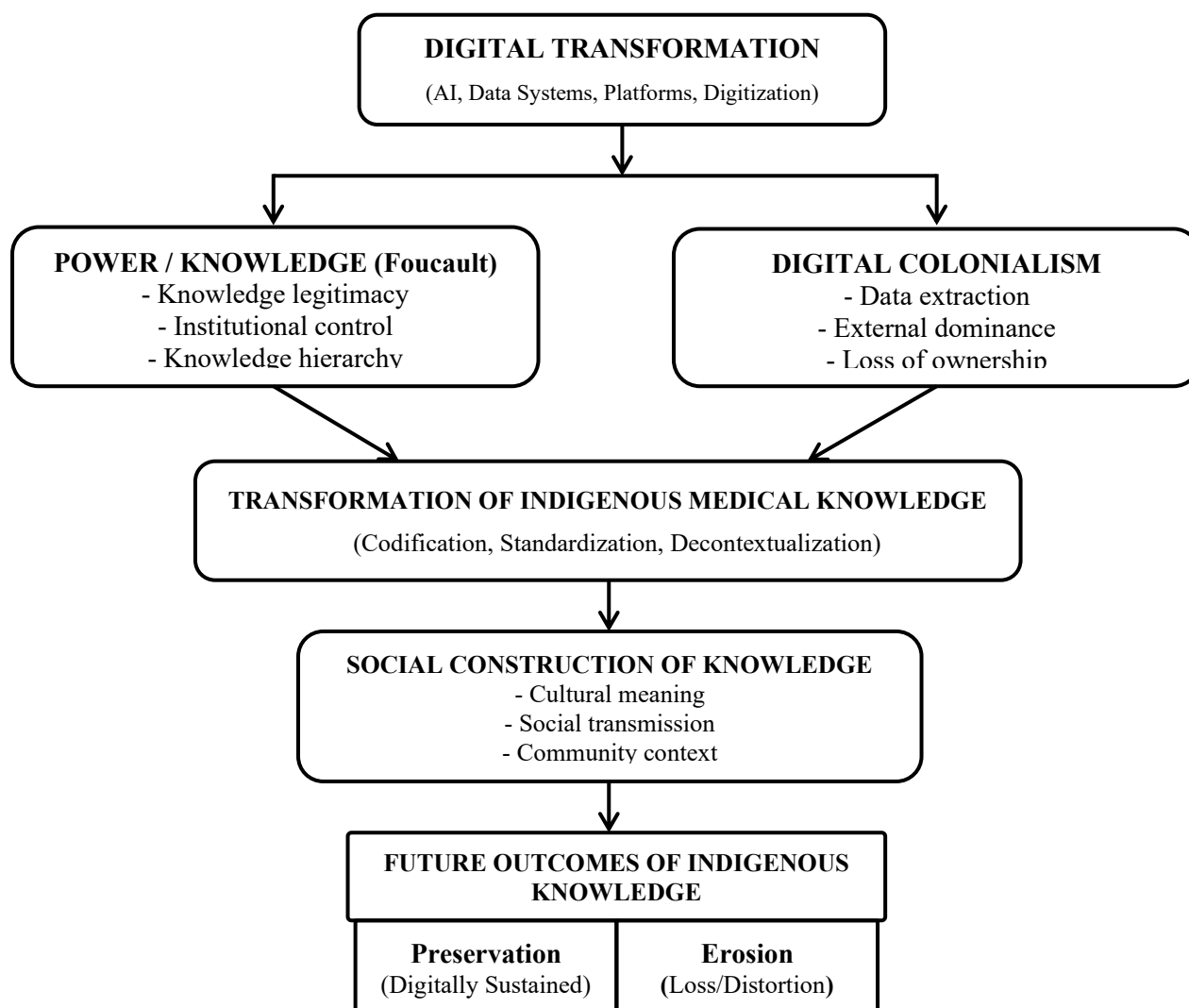


Figure 1: Theoretical Framework of Digital Transformation and the future of Indigenous Medical Knowledge

Source: Author's conceptualization (2026).

Figure 1 illustrates how digital transformation engages with the power/knowledge relation and processes of digital colonialism in the transformation of indigenous medical knowledge, where results can be preservation or disintegration according to the sociocultural context.

ISSUES IN DIGITAL TRANSFORMATION AND THE TRANSMISSION OF INDIGENOUS MEDICAL KNOWLEDGE IN PARTS OF AFRICA

Opportunities of Digital Transformation

The claim that modernization of culture particularly through digitalization and urbanization can endanger or contribute to the loss of traditional knowledge of indigenous medicinal plants was supported in the findings of this study. Be that as it may, the (legitimate) alarm caused by distortion and by un-authorized use (extreme forms of cultural globalization) can be balanced by a look at how digital technologies promise to re-sustain and grow traditional knowledge systems, vulnerable ones at that to loss. From a sociological standpoint, these developments illustrate the ability of technology to change not just the storage of knowledge but also the



access to, the dissemination of, and the ways in which knowledge is transformed from one generation to the next.

Preservation of Indigenous Medical Knowledge

Among the far-reaching advantages of digital transformation which is often touted, is its ability to save vanishing indigenous knowledge. It is not only the reproduction of knowledge transmission, which has been brides by urbanization, generational replacement and the loss of indigenous languages (Jami et al, 2024) but also that traditional indigenous medical knowledge has been communicated orally or through apprenticeship.

Knowledge can be documented and archived in digital technologies in a diversity of modalities such as text, audio, video, or multimedia documents. This makes it possible to establish digital repositories capable of preserving knowledge beyond the life of a single knowledge holder. In this regard, digital transformation is cultural memory – it secures knowledge even as more traditional systems of transmission weaken.

Moreover, digital preservation can foster intergenerational continuity as it has the potential to provide knowledge access to younger generations who are at all times becoming more immersed in digital worlds. In converting indigenous knowledge to formats that are compatible with current forms of communication, digital media can serve to navigate the gulf between tradition and modernity.

But the conservation via digitization is not just an engineering process, but also a curatorial one. Whose knowledge gets documented and represented, and how, are decisions that affect what is preserved and potentially excluded. Even with this constraint, digital transformation is the key instrument for preserving endangered systems of knowledge.

Accessibility and Knowledge Democratization

The digitalization of traditional knowledge also levels the playing field for access, allowing traditional medicine to reach audiences outside the constraints of geographical location and class. As opposed to traditional knowledge systems which are closed, secret and knowledgeshare that specific individuals or groups are privy to, digital systems facilitate wider dissemination and greater access (Vial, 2019).

Having greater access to this information may contribute immensely to better health. First, it may raise awareness of health care by illuminating indigenous medicine, preventive measures, and other culturally appropriate approaches to health. Second, it may foster the transfer of knowledge between disparate communities, leading to cross-cultural learning and creative solutions. Third, it may contribute to efforts of integration by (allowing for the) greater visibility of indigenous knowledge in formal health care and research systems.

From a sociological angle, this can be seen as an aspect of democratization of knowledge, in which information is no longer withheld by geographic, social, or institutional boundaries. Digital solutions, such as apps and web-based platforms, have the potential to enable people to interact with different knowledge systems and bring about informed decisions about health. Yet, access is uneven, and shaped by digital divides, such as those based on access to internet, digital literacy, and technological infrastructure. Hence, although digitalization enhances the accessibility in the principle aspect, benefits may not reach all groups of people.



Scaling and Global Visibility

Another important play for digital transformation is in scaling indigenous medical knowledge or raising the visibility of native practices beyond local settings. Digital platforms can facilitate the replication, sharing and distribution of knowledge at levels that are regional, national or global (Kitchin, 2014).

The scaling up of indigenous knowledge systems also can increase its exposure and validation by linking it to the global knowledge networks. This could bring a field to the attention of researchers, policy makers and perhaps funders in areas related to herbal medicine, alternative therapies and culturally grounded health care practices. Use of natives' information also has the effect of highlight awareness which can lead to traditional medicine being incorporated in worldwide health systems and hence, the visibility of indigenous knowledge in global health systems.

Also, scaling up allows for new combinations and innovation as indigenous knowledge is brought alongside the methods of contemporary science. For instance, the computerization of knowledge can be used to conduct research on plant medicines, to shape public health efforts, and to help develop integrative models of health care. But scaling brings with it new challenges of context and meaning. Native wisdom is frequently intricately tied to unique cultural and environmental contexts, and what works in one context might not work in another. Knowledge, when scaled and transferred between locations, can be distorted, oversimplified, or misapplied.

Yet, scalability is still a key positive difference between digital and non-digital transformation, and thus, a basis for potential new ways of recognizing, utilizing and sustaining indigenous medical knowledge in the future.

Risks and Threats of Digital Transformation

While the digital transformation has brought about promising prospects for conservation and revitalization of indigenous medical knowledge, it also brought forward to risks that potentially could undermine what it strives to protect. From the sociological point of view, these threats are not accidental or external but inscribed in the very processes of digitizing, standardizing and hooking knowledge into global technological systems. Here, we critically address the most important vulnerabilities related to the digital transformation of indigenous medical knowledge. Such dynamics strengthen the pathways especially the influence of decontextualization and power asymmetries in determining knowledge outcomes.

Knowledge Loss through Codification

Paradoxically, digitization (queuing as preservation) is itself a form of knowledge-loss. Indigenous medical knowledge is predominantly tacit, experiential, and place-based and is conveyed via practice, by way of observation, and through social relations (Nonaka & Takeuchi, 1995; Polanyi, 1966). When that knowledge is digitized, it needs to be codified within a series of layers of structure, simplification, and sometimes standardization.

This articulation of tacit knowledge could lead to the loss of nuances, corporeality, and contextuality that are difficult to represent in digitized information (Kitchin, 2014). For instance, the potency of a herbal medicine may be influenced by more than the plant itself, but also by the time of day, ritual procedures, weather, the experiential knowledge of the healer and so on. Thus, this vital information is often deleted in paper documentation. While fragments of the knowledge may be retained in digital archives, their meaning and utility may not.



Digitization could thus render a kind of “partial preservation,” survival of the form but not the substance of knowledge.

Misappropriation and Exploitation of Indigenous Knowledge

Yet, another major concern is the exploitation of indigenous medical knowledge, especially in situations where digital platforms facilitate global access without sufficient safeguards. Once knowledge is turned into digital it is more susceptible to be taken out, commercialized and used by external parties, such as pharmaceutical companies and research institutions (Couldry & Mejias, 2019).

Consequently, this concerns the IPRs, the sharing of benefits, and the indigenous community as holder of knowledge. For centuries, indigenous knowledge has been taken without permission or pay, and digital technologies could speed up the process, by making knowledge more visible and easier to get.

In several cases across Africa, the legal systems that could shield indigenous knowledge are either inadequate or non-existent. Hence, communities are under threat of losing control of their systems of knowledge and such knowledge could be commodified and repackaged in ways that may not reflect on cultural values or contribute to their means of living.

Decontextualization of Knowledge

Digital revolutionizing also plays a part in stripping out the context in traditional knowledge. Traditional practice in this sense is ‘place-based’, embedded in particular cultural, social and environmental contexts. Their significance, effectiveness and indeed content are often inseparable from, and defined by these contexts (Berger & Luckmann, 1966).

With digitization, knowledge can be taken out of its context and interpreted in new ones across different locations. This may result in misinterpretations, the misuse of or trivializing of the complexity of practice. For instance, a healing ritual with cultural and spiritual meaning may become a technical procedure in digital format.

The process of decontextualization impacts not only the understanding of a knowledge but also the value of it. Knowledge that is exported from one culture may lose its validity back home and be transformed in the cultures to which it travels. This could potentially destabilize the social boundaries that allow for knowledge production.

Digital Colonialism (Deep Dive)

The idea of digital colonialism serves as an analytical lens to apprehend the systemic vulnerabilities that indigenous knowledges are experiencing as they engage the digital in today’s world. Digital colonialism is the colonial patterns of domination via digitized platforms that extract, capture, and commodify the data, knowledge, and cultural resources of marginalized communities into the hands of dominant global actors (Salami, 2024).

With regard to indigenous medical knowledge, digital colonialism is exemplified in several issues. The first is the design and development of digital platforms and infrastructure are largely controlled and governed by entities not located in Africa with whom you have asymmetry of power, access and resources. The second issue is that the digitization of knowledge often means that external scholars or organizations decide how the knowledge is to be gathered, categorized and shared.



This has led to situations where local knowledge is harvested into global databases without sufficient input or ownership by the source communities. The end result is a kind of epistemic extraction, the distancing and delocalization of knowledge from its collectivist, lived and culturally embodied origins into systems extolling exogenous priorities.

Further, digital colonialism also provokes issues of digital sovereignty, the rights of communities to own and control their data, knowledge and digital self-representation. Transforming indigenous systems the right way, with control of their own resources, the way they want, and without control, digital transformation is liable to turn into a rerun of how historically indigenous resources have been bled from local communities, for global profit.

Ethical Concerns and Governance Challenges

There are important ethical issues raised by the digitizing of indigenous medicinal knowledge. These are consent, ownership, portrayal, and ignorance, or misappropriation of cultural or sacred knowledge. Systems of indigenous knowledge often contain elements that are restricted to certain individuals or groups, and which are not meant to be made public (UNESCO, 2017). By giving access to everything, digitizing knowledge can also break down these boundaries' surrounded knowledge without cultural protocols or permissions. It prompts ethical considerations around who is entitled to document, share and appropriate indigenous knowledge, and under what conditions.

There are also questions about the fidelity and veracity of digitalized knowledge. Without sufficient validation and participation from the community, digital representations can alter original modalities. This can contribute to the erosion of expertise and discredit indigenous knowledge systems.

Thus, good governance models are needed to tackle these ethical challenges. These processes need to emphasize community engagement, informed consent, and fair-share advantage to ensure that the digital transformation supports rather than undermines these systems of indigenous knowledge.

The Future of Indigenous Medical Knowledge in the Digital Age

The extent to which indigenous medical knowledge can thrive within modern African communities will depend on the extent to which the opportunities presented by the digital era can be embraced while balancing against the inherent threats that it poses. Digital technologies are excellent for preservation, access, and scaling, but they also bring threats such as loss, misappropriation, decontextualization, and digital colonialism. It is not technology per se, but the systems that control, constrain and interpret it that are relevant coming from this perspective, on indigenous medical knowledge."

In sociological terms, the major task is to prevent digital transformation from supplanting traditional knowledge systems and instead fostering their persistence in situ through continuities that sustain the symbolic aspects and social meaning of cultural knowledge. This calls for complementing the technocratic answers with more holistic, context-aware and ethically informed strategies.

Hybrid Knowledge Systems

Among the most exciting trajectories for the future is the emergence of hybrid knowledge systems that combine information technologies with traditional forms of knowledge dissemination. Instead of treating digital and native systems as opposing choices, hybrid models leverage the best of both.

In these systems, digital technology can be employed to record and reinforce knowledge, while traditional means; apprenticeship, oral communication, practice in the community, continue



to inform what that knowledge means and how it is put into practice. It maintains the relational and holistic view of indigenous knowledge and allows the power of digital collection and dissemination.

Hybrid models may also facilitate collaboration between indigenous and formal healthcare institutions, at a community, regional and national level. Hybrid models preserve the pluralist coexistence of knowledge systems and thus are consistent with the principle of medical pluralism, offering more viable routes to the continuity of knowledge.

Ethical Artificial Intelligence and Responsible Digitization

As digital transformation comes to be largely shaped by artificial intelligence and data-powered systems, the need for ethical AI becomes vital. AI could also be used to analyze and make indigenous medicine knowledge more accessible, but if not properly regulated it could privilege certain knowledges and exacerbate inequalities (Albert, 2025).

Ethical AI in this sense means understanding that indigenous knowledge is not to be treated as just data to be mined and processed but as culturally situated knowledge that requires respect, consent, and contextual knowledge. This involves making sure that knowledge is not distorted or oversimplified by AI systems and that indigenous knowledge is included when designing and implementing them.

Digitization with a conscience is also about developing processes for what knowledge is appropriate to be digitized, who gets to use it, and for what ends. Where do we draw the line – in terms of protecting the integrity of cultural traditions, and the trust that is required to maintain that?

Digital Sovereignty and Community Control

One key challenge for the future of indigenous knowledge is digital sovereignty, that is, the right and ability of communities to govern their knowledge, data and digital representations. Computerization may have assisted eastwards spreading patterns of extraction and domination (folk colonialism and the like) to be repeated or reinvented in the context of new cultural forms (Couldry & Mejias, 2019).

Digital sovereignty means indigenous people have control over their knowledge systems such as decision making regarding documentation, storage, access and use. This may involve designing community-based digital platforms, local data governance models, and legal mechanisms to recognize indigenous intellectual property rights.

Specifically in the African context, digital sovereignty must also address the digital divide – infrastructure, digital literacy, and policy inclusion. To exploit this potential and ever changing means of participation more communities must be able to participate in digital processes that serve their interests and not just those of external elites.

Toward a Context-Sensitive Integration Framework

Based on the discussions in this paper, a prospective framework for survival of indigenous medical practice should be guided by the following principles:

1. Cultural Maintenance - Digital projects need to safeguard the cultural context, as well as the content, and based within cultural understandings.
2. Inclusivity in Governance – The indigenous communities need to play an active role in the governance of the digitization and use of their knowledge.
3. Ethical Regulation: Policies need to consider issues of consent, ownership, benefit-sharing and prevention of misuse.
4. Hybrid Transmission Systems – Traditional knowledge communication systems should be supported by, rather than displaced by, digitization.
5. Fair Access: The digital divides must be addressed so that the benefits are shared globally.



This framework also holds that the future of indigenous knowledge is to be found in a balanced hybrid, with technological innovation fostered and moderated with sociocultural sustainability.

CONCLUDING REFLECTION

In the end, “*Will the Knowledge Survive?*” does not turn out to have a simple technological answer. Digitization does not guarantee survival, nor does it automatically bring about the threat of extinction. Rather, the fate of indigenous medical knowledge is in the hands of those who will ultimately determine how digital transformation manifests – policymakers, practitioners, researchers, and communities.

Under the right conditions; codes as values, codes as spoken word, physical, mental, spiritual, cultural, communal, social-digital transformation can be a very powerful medium for revitalizing and maintaining indigenous knowledge systems. But too much technologic or commercial motivation contributes to implementing the same tides of erosion and marginalization rather than halt them.

This article thus claims that in order for an indigenous medical knowledge to survive in the digital age, it must make a conscious and critical engagement with both technology and society. Through a sociological understanding of the potentialities of new technologies, knowledge systems which are not only conserved, but also enabled to flourish in an era of accelerating change, can be constructed.

CONCLUSION

The paper investigated if holistic was capable of adapting in the very different digital imperatives of modern-day African nations. Drawing on Foucauldian power/knowledge relations, digital colonialism, and the social construction of knowledge, the analysis has revealed that digitalization is not in and of itself preservative or destructive. Instead, it is a social process of knowledge generation which simultaneously offers new possibilities for knowledge continuities and epistemic risks.

On the one hand, digital technology can provide excellent tools for the preservation of such endangered knowledge as has already been made more readily accessible and for the dissemination of indigenous medical traditions beyond their specific cultural milieus. On the other hand, the processes of codification, standardization, and global dissemination also introduce major threats, including the destruction of knowledge, the misappropriation of knowledge, the decontextualization knowledge, and the reproduction of hierarchical relations of power within digital systems (Kitchin, 2014; Couldry & Mejias, 2019). These twin imperatives emphasize the central aim of this paper - the destiny of indigenous medical knowledge is not to be found in technology and technology alone but in the social, cultural and institutional contexts within which technology finds its expression.

The results highlight the need to go beyond the simple story tentatively that digital transformation is the best way to preserve indigenous knowledge. A more complex strategy is necessary that appreciates the cultural nature of indigenous knowledge and that can safeguard its integrity as a body of knowledge and a way of life, while being open to evolving in ways consistent with the pressures of contemporary life. The framework proposed herein builds on hybrid knowledge systems, ethical AI and digital sovereignty as a way in which digital transformation/ICT-enabled communications can work to support (not undermine) indigenous knowledge systems.

The paper contributes to policy by suggesting the need for the establishment of context specific forms of governance that would be based on community involvement, prior informed consent,



and fair and equitable sharing of benefits. Enhancing legal and institutional frameworks to support protection of indigenous intellectual property and address digital divides will be crucial in nurturing inclusive and sustainable knowledge ecosystems. Additionally, interdisciplinary teamwork involving sociologists, technologists, healthcare providers, and indigenous populations is vital for the development of digital platforms that are advanced and culturally sensitive.

Summarily, the survival of indigenous medical knowledge in the age of digital media is not a foregone conclusion, but it is not a distant dream either. It needs thought, ethical and inclusive interaction with digital tools informed by an intimate understanding of the social processes that maintain knowledge. If we can synchronize the technological advancements with the sociocultural preservation, then we can envision a futuristic scenario wherein indigenous medical knowledge doesn't just exist but advances in a digitized world.

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