

# Cultural Ecology At Your Fingertips: Anthrophology of The Indonesian Art Spectrum in The Grip of Technological Extension and Artificial Narratives

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## ABSTRACT

**Objective:** This study originates from a fundamental issue concerning the wave of technological extension infiltrating the core of traditional Nusantara arts, generating tension between preserving cultural authenticity and the inevitability of digital adaptation. Simultaneously, it introduces non-human actors such as algorithms and artificial narratives that actively reshape the cultural ecology. **Method:** Employing a literature review methodology, this research examines four interrelated problematic dimensions. **Results:** The findings reveal, firstly, that the transformation of traditional artistic practices occurs through a continuous negotiation between fluid authenticity and contextual digital adaptation, rather than a binary stance of rejecting or embracing technology. Secondly, digital platform algorithms function as gatekeepers of new cultural domains, altering the mechanisms of canonization and distribution of cultural artifacts, whereas artificial intelligence capable of instant meaning reproduction often lacks the emic dimension and cosmological depth that constitute the essence of traditional knowledge. Thirdly, the deconstruction of space and time due to digitalization detaches art from its sacred context, yet simultaneously creates liminal spaces where creative hybridity can flourish. **Novelty:** Fourthly, the crisis of knowledge authority triggered by artificial narratives is met by cultural practitioners through various strategies ranging from protective resistance to accommodative negotiation. This study concludes that the future of Nusantara arts in the digital era is not determined by technology itself but by the capacity of cultural agents to continuously and critically negotiate the balance between the sacred and the profane, the permanent and the mutable.

## INTRODUCTION

The wave of digitalization that has permeated every facet of contemporary human life has now deeply infiltrated cultural domains previously regarded as the last bastions of human authenticity. Traditional Nusantara arts, with their intricate cosmologies, spiritualities, and embedded local knowledge, currently find themselves at a crossroads between preserving their core essence and transforming in alignment with the seemingly inexorable tide of technological extension. The issue no longer centers on whether digitalization should be undertaken, but rather shifts to a more fundamental problem: how the relationships among humans, their environment, and cultural artifacts are reconfigured by the presence of digital infrastructures, algorithms, and artificial narratives that increasingly dominate the production and distribution of cultural meaning. The cultural ecology, once understood as an organic network among communities, nature, and symbolic expression, must now account for the inclusion of non-human actors endowed with curatorial and narrative agency of comparable potency.

This vast digital transformation engenders profound academic unease, particularly because much of the existing discourse remains trapped within the outdated dichotomy between naive technological optimism and romantic cultural pessimism, failing to grasp the true complexity of the negotiations unfolding in practice [1].

Within the landscape of contemporary Nusantara cultural heritage, the phenomenon of transforming traditional artistic practices through technological extensions has manifested in diverse, non-uniform, and complex forms. Recent research on the digital transmission of Riau Malay Dance via the TikTok platform reveals that social media has evolved into a participatory learning space facilitating informal processes of observation, imitation, and modeling of dance movements among younger generations. This development fosters intergenerational learning communities previously inconceivable within conventional transmission frameworks [1]. Concurrently, the study also identifies several critical issues, including cultural commodification, superficial cultural understanding, digital literacy gaps, and algorithmic biases that tend to prioritize popular and sensational content over the profound meanings inherent in tradition. These findings illustrate that digitalization is not a culturally neutral process but rather a contested terrain where local values confront the platform logics designed by global technology corporations, whose interests often diverge from cultural preservation agendas.

In other regions of the Nusantara, efforts to digitize traditional arts have taken on distinct forms while reflecting similar underlying concerns. The digitization initiative of the Saluang Pauh and Silek Pauh repertoires, undertaken by a team of academics from Universitas Negeri Padang in collaboration with Minangkabau traditional art masters, demonstrates that preservation efforts extend beyond merely converting performance documentation into digital formats. Rather, they must encompass the direct transfer of knowledge between masters and succeeding generations, including the recording of values, techniques, and philosophies that constitute the essence of the art form (Ardipal et al., 2025). A parallel concern underpins the digitalization program for batik designs in Kampung Batik Laweyan, led by ISI Surakarta, where eighty percent of artisans still rely on manual sketching methods requiring three to four weeks to produce a new motif production rhythm that is nearly impossible to sustain amid the demands of a digital market seeking constant visual novelty [2].

These initiatives represent an adaptive response to the pressures of technological expansion, yet simultaneously reveal a troubling paradox: while digitization offers unprecedented access and efficiency, it also poses risks of meaning reduction and decontextualization that threaten cultural integrity. A more complex issue arises when artificial intelligence transcends its traditional role as a mere tool for documentation or distribution and begins to assume the role of creator and narrator within the traditional art ecosystem. The study by Simanjuntak and colleagues on the application of generative adversarial networks to produce new Ulos motifs on the DiTenun platform demonstrates that algorithms are now capable of generating patterns that visually resemble traditional

Batak weaving, with variations that surpass human weavers in terms of speed and quantity [3].

This finding raises unsettling ontological questions: when machines can produce motifs that are technically flawless but originate without the processes of contemplation, ritual, and cosmological reflection foundational to traditional weaving creation, where then lies the human value in such artistic works? This disquiet extends beyond the realm of production to encompass issues of epistemic authority, as search engines and generative artificial intelligence can now generate narratives about the symbolic meaning of motifs or the philosophy of a dance within seconds, surpassing the capacity of a maestro who requires decades to master such knowledge. What renders this situation increasingly complex is the fact that the digital infrastructure underpinning this transformation is controlled by a handful of dominant technology corporations whose business logic does not always align with the interests of cultural preservation. Research on the representation of Riau culture on social media reveals that designers and cultural practitioners who upload traditional art content to platforms such as Instagram, TikTok, and YouTube are compelled to adapt traditional Malay visual systems such as canonical color palettes, pucuk rebung motifs, and Arabic-Malay typography into the fast-moving digital media aesthetics that demand immediate visual impact [4].

While this adaptation successfully enhances visibility and audience engagement, it often comes at the expense of cultural depth, creating a palpable tension between authenticity and virality experienced acutely by content creators. Algorithms driven by user engagement metrics tend to amplify sensational and easily digestible content, whereas subtle and philosophical cultural expressions become submerged in the overwhelming flow of data. This reality raises a fundamental question: can the cultural ecology of the Nusantara endure and flourish within a digital infrastructure designed according to logics alien to local values? The concerns outlined above are not merely speculative apprehensions of academics detached from on-the-ground realities. Rather, they represent the lived experiences of traditional art practitioners who are at the forefront of negotiating the intersection between tradition and technology. Research conducted by students at Brawijaya University on the transformation of Angklung art within the Senopati community, Langlang Village, Malang Regency, illustrates how a group of youth, through self-initiative and without governmental support, engage in cultural preservation by repackaging Angklung performances into digital content formats that resonate with Generation Z. This includes performing popular songs and DJ arrangements using the traditional instrument [5].

On one hand, this effort deserves commendation as a remarkable example of cultural resilience; on the other hand, it raises critical questions regarding the limits of transformation that can be tolerated before the Angklung loses its cultural essence and becomes merely a prop for entertainment content. This dynamic lies at the core of the challenges facing the transformation of traditional Nusantara art practices in the era of technological extension, representing a complex and ongoing negotiation between

authenticity and digital adaptation. The research problem originates from the reality that waves of technological extension have deeply penetrated the fabric of traditional Nusantara arts, generating tensions that have yet to be fully mapped between the impetus to preserve authenticity and the inevitability of adapting to digital media. The first issue concerns how artistic practices, originally embedded within sacred spaces, oral transmission, and communal rituals, must now negotiate with digital platforms operating according to the logic of virality and instant engagement.

The second problem involves the fundamental transformation of the cultural ecology, wherein algorithms and artificial intelligence no longer function merely as tools but have become non-human actors that curate, distribute, and even create cultural artifacts and the narratives surrounding them. The third challenge relates to the deconstruction of space and time, which unsettles the cosmological foundations of Nusantara art, simultaneously juxtaposing the local habitus shaped through prolonged acculturation with natural rhythms and traditions with technological logics demanding speed and scalability. The fourth and equally critical issue concerns the crisis of epistemic authority, where machine-generated narratives produced by search engines and generative artificial intelligence, within seconds, begin to rival and even supplant the authority of masters and customary institutions that require decades to master and transmit cultural knowledge. These four interrelated problems form a complex web of issues that have yet to be addressed by an adequate anthropological analytical framework, leaving an urgent gap in knowledge that demands resolution. The urgency of this research is grounded in the pressing need to develop a new conceptual framework capable of interpreting the multidimensional transformation of traditional Nusantara arts, moving beyond the outdated dichotomy between naive technological optimism and romantic cultural pessimism. Theoretically, this study is imperative because existing discourses remain fragmented across isolated domains, whereas the phenomena occurring in the field transcend boundaries and demand a holistic anthropological reading of the ongoing cultural ecological changes.

Practically, the urgency lies in the accelerating flow of cultural platformization, which is not accompanied by an ethical framework or cultural policies capable of safeguarding the integrity of local knowledge from risks of appropriation, decontextualization, and dilution of meaning. The younger generation of Nusantara, as primary users of digital infrastructure, is vulnerable to consuming constructed narratives about their ancestral culture without possessing the critical literacy necessary to verify the authenticity and depth of the information received. If this issue is not promptly mapped and addressed through an appropriate framework, the cultural heritage of Nusantara risks losing its emic dimension and cultural essence amid the unstoppable surge of data circulation.

The objective of this study is to conduct an in-depth investigation into four problematic dimensions outlined as sub-themes of the research, while simultaneously addressing the academic and practical concerns previously articulated. First, the study

aims to critically reveal and analyze the transformation of traditional Nusantara artistic practices in the era of technological extension, mapping the spectrum of negotiations undertaken by artists as they navigate the tension between preserving cultural authenticity and embracing digital adaptation. Second, the research seeks to describe the dynamics of relationships among humans, the environment, and cultural artifacts within a cultural ecology reconfigured by the presence of algorithms and artificial narratives, and to identify how these non-human actors reshape the mechanisms of canonization, distribution, and reproduction of meaning within the realm of traditional arts. Third, the study endeavors to deconstruct the processes of spatial and temporal disruption occurring within the spectrum of Nusantara arts as a result of the acculturation between local habitus and the logic of technological extension, while examining its implications for aesthetic experience, spirituality, and the intergenerational transmission of knowledge. Fourth, the research aims to investigate the crisis of epistemic authority triggered by the hegemony of digital infrastructures, by mapping the diverse strategies of resistance and negotiation developed by traditional artists in confronting the onslaught of artificial narratives that threaten the emic dimensions and cultural integrity of ancestral knowledge heritage.

## RESEARCH METHOD

This study employs a library research methodology, an approach that positions scholarly texts as the primary field of exploration and source of knowledge, rather than direct empirical engagement with human subjects. The selection of this research type is motivated by the need to construct a profound and interdisciplinary conceptual synthesis concerning the cultural ecology of Nusantara art in the digital era. This necessitates thorough investigation, reading, and critical analysis of ideas disseminated across various academic publications. Library research enables the researcher to engage in a dialogue with the intellectual contributions of previous scholars, map ongoing academic debates, and identify unresolved gaps in knowledge. In the context of the chosen theme, this approach is particularly pertinent, as the technological extensions and fabricated narratives within Nusantara art represent a dynamic field, requiring a flexible yet theoretically grounded reading [6].

The data sources in this study are constructed in a layered and comprehensive manner, encompassing three main categories of literature that complement and inform one another. The first category consists of scholarly books addressing digital anthropology, cultural ecology, philosophy of technology, and Nusantara art studies from various disciplinary perspectives. The second category comprises articles from scientific journals, both international and national, published between 2021 and 2026, thereby reflecting the latest discourse and recent findings in the field. The third category includes research reports issued by academic institutions, research centers, and cultural organizations directly relevant to the study topic. These three categories of data sources are not arranged hierarchically but are treated as a mosaic of knowledge, each

contributing unique perspectives to the research problem. Scholarly books provide theoretical depth and systematic conceptual frameworks; journal articles present empirical findings and analyses of specific cases; while research reports offer contextual insights and practical policy recommendations [7].

The data collection technique employed in this literature-based research follows a rigorous and well-documented series of procedures, beginning with identification, selection, and culminating in the documentation of relevant library materials. The identification process involves formulating keywords that reflect the various dimensions of the research problem, such as technological extension, algorithms and traditional arts, artificial narratives and local knowledge, as well as the deconstruction of digital cultural spaces. These keywords are subsequently utilized to perform systematic searches within digital library catalogs, academic databases, and institutional repositories. Upon identifying a substantial body of literature, a selection process is conducted based on predetermined inclusion criteria, which encompass topic relevance, authoritativeness of the author, currency of the publication, and accessibility to the full text. Materials that meet these criteria are then collected, preserved, and organized within a classification system designed to facilitate retrieval and cross-referencing during the analysis phase. Documentation techniques constitute the primary method of data collection, wherein each unit of information cited or paraphrased from the source materials is meticulously recorded, accompanied by authorship and publication metadata to ensure academic integrity and prevent plagiarism [7].

The data analysis technique employed in this study is qualitative content analysis, conducted through an inductive and iterative approach. This method aims to capture not only the surface meanings of the examined texts but also the underlying structures, hidden assumptions, and thematic patterns connecting various literature sources. The analysis begins with repeated readings of all documented materials to gain a holistic understanding and to identify text segments directly related to the four research subheadings. These segments are initially coded descriptively and subsequently grouped into more abstract categories through processes of reduction and synthesis. The categories are further abstracted into overarching themes that reflect the conceptual findings of the study. The final stage of the analysis involves interpretation, wherein the identified themes are examined within relevant theoretical frameworks, juxtaposed to reveal tensions and paradoxes, and woven into a coherent and argumentative narrative. The validity of the interpretations is maintained through continuous cross-checking between the generated themes and the original textual data, ensuring that the reasoning remains grounded in evidence traceable by readers [6].

The technique for testing data validity in this literature-based research cannot simply adopt the validity and reliability tests commonly applied in quantitative research. Instead, it refers to the trustworthiness framework specifically developed for the qualitative paradigm. The four pillars of trustworthiness—credibility, transferability, dependability, and confirmability—are operationalized through a series of strategies

tailored to the characteristics of literature data. Credibility, or internal validity, is achieved through source triangulation by comparing and confronting information obtained from books, journal articles, and research reports originating from diverse theoretical perspectives, thereby enabling cross-verification and consistency testing of findings. Additionally, theoretical triangulation is conducted by examining the literature data through various conceptual lenses, ranging from digital anthropology to the philosophy of technology, to ensure that the resulting interpretations are neither monolithic nor reductionist [8]

Transferability or external validity within the context of this literature-based research is not assessed by the capacity for statistical generalization, but rather through the richness and depth of contextual description that enables readers to independently evaluate the extent to which the research findings can be transferred to similar contexts. Accordingly, each unit of analysis in this study is meticulously contextualized in terms of geographical, historical, and cultural dimensions, thereby providing readers with a sufficient understanding of the boundaries within which the findings are applicable. Dependability or reliability is maintained through the construction of an audit trail that transparently documents the entire research process, from the formulation of research questions, data source retrieval, literature selection, data coding, to the drawing of conclusions. This audit trail allows other researchers or reviewers to examine the consistency and rigor of the procedures implemented. Meanwhile, confirmability or objectivity is ensured by verifying that every interpretation and conclusion presented can be directly traced back to the original data sources, rather than being influenced by researcher bias, personal preferences, or preconceived notions. By applying these four pillars of trustworthiness, this literature-based research aims to meet rigorous validity standards comparable to field research, thereby contributing credible, reliable, and scientifically accountable knowledge [8].

## RESULT AND DISCUSSION

### **The Transformation of Traditional Indonesian Art Practices in the Era of Technological Extension: Between Authenticity and Digital Adaptation**

This study originates from an academic concern regarding the wave of digitalization impacting the fabric of traditional Nusantara arts. Artistic practices that were once embedded within sacred spaces, communal rituals, and oral transmission must now negotiate with the presence of technological extensions. This shift is not merely a change in medium from physical to digital but represents a fundamental transformation in the ontology of art itself. A wayang kulit performance streamed through a video-on-demand platform no longer requires the physical presence of the dalang, gamelan, and audience within the same spatial-temporal context. The digital veil has created a new distance between the artwork and its audience. Questions of authenticity arise when the tactile, auratic, and participatory essence of the art is translated into binary codes and displayed on a cold screen surface. The digital

adaptation undertaken by traditional artists demonstrates remarkable cultural resilience, yet simultaneously raises critical inquiries regarding the limits of transformation that can be tolerated before an art form loses its cultural soul [9].

The tension between preserving authenticity and embracing the inevitability of digitalization constitutes a complex arena of negotiation. Contemporary traditional artists in the Nusantara region find themselves in a bifurcated role: on one hand, as guardians of ancestral values, and on the other, as participants compelled to engage with the platformization of culture to remain relevant to generations born into a digitally mediated world. This process of adaptation produces intriguing hybridity, wherein traditional visual elements intersect with augmented reality technologies in virtual art exhibitions, or gamelan rhythmic patterns are reinterpreted using digital music production software. This study views such phenomena not as a form of degradation, but rather as a continuation of the long-standing narrative of Nusantara art, which has historically been adaptive and syncretic. A literature review of recent academic sources reveals that the rigid dichotomy between the authentic and the artificial is increasingly abandoned, replaced by a more fluid understanding of authenticity as a social construct that is continuously revised according to shifting spatial and temporal contexts [10].

In a more applied domain, digitalization facilitates participatory access that was previously unimaginable. Collections of ancient manuscripts, pentatonic notation scores, and rare performance documentation are now accessible to anyone across geographical boundaries. This ease of access acts as a double-edged sword: the democratization of knowledge occurs alongside risks of cultural appropriation and decontextualization of meaning. A sacred dance, traditionally performed only within specific religious ceremonies, can now be readily downloaded, studied, and reproduced by individuals lacking any comprehension of the underlying cosmology. Platform algorithms, driven by trends and user engagement metrics, risk reducing the philosophical complexity of artworks to mere entertainment content, consumable in a rapid and superficial manner. This situation necessitates the development of new ethical frameworks capable of safeguarding cultural integrity amidst the overwhelming flow of data [11].

The transformation of traditional Nusantara art practices in the era of technological extension presents ontological challenges that transcend a mere technical transition from physical to digital media. This study confirms that traditional art practitioners do not occupy a binary position of either outright rejection or acceptance of digitalization; rather, they engage in a continuous negotiation between preserving authenticity and embracing the inevitability of adaptation. These findings align with the research of Holst and Bekmeier-Feuerhahn, who identify two complementary strategic orientations within traditional performing arts organizations responding to digital transformation: scaling, which focuses on expanding access by reproducing existing formats, and potentialization, which embraces digitality as a space for creative exploration and the re-creation of artistic expression [12]. These orientations are not

mutually exclusive options but dialectical poles operating within the daily practices of Nusantara art practitioners.

In the context of Nusantara, a similar negotiation is evident in the Karungut art form of the Dayak community in Central Kalimantan. Originally tied to the sacred context of the Kaharingan religious ceremony, Karungut has found new expressive spaces in Car Free Day events, schools, and digital media without entirely relinquishing the cosmological values that underpin it. Research by Saipul and Hamberi reveals that the cultural adaptation of Karungut occurs dynamically across four scales of transformation: temporal, spatial, social, and political. These scales collectively demonstrate that Karungut practitioners continuously renegotiate the boundaries between traditional values and modern demands [13].

Specifically, on the temporal scale, Karungut is transmitted vertically through schooling, horizontally through peer interactions in public spaces, and obliquely via the role of artistic figures as mentors. On the spatial scale, there is a significant shift from sacred spaces to public performances and digital platforms, creating broader audiences but also provoking discourse on authenticity, especially as innovations such as the use of keyboards as substitutes for traditional musical instruments are introduced. Furthermore, the issue of authenticity that arises within the context of Karungut reinforces the argument that authenticity is not a fixed entity rooted in past romanticism but rather a social construct continuously negotiated through dialogue between heritage values and contemporary contextual pressures. When Karungut artists perform at Car Free Day accompanied by a keyboard instead of traditional musical instruments, they are engaging in what Holst and Bekmeier-Feuerhahn describe as a strategy of potentialization embracing digitality as a space for creative exploration that opens new artistic possibilities. Nevertheless, this strategy is met with resistance from within the artistic community itself, who express concern over the potential loss of the cultural spirit inherent in the art form. The tension between efforts to preserve traditional formats and the drive to adapt to contemporary tastes and media exemplifies what Holst and Bekmeier-Feuerhahn characterize as the friction between scaling and potentialization, which shapes the landscape of digital transformation in traditional performing arts organizations [12].

### **The Dynamics of the Relationship between Humans, the Environment, and Cultural Artifacts: The Role of Algorithms and Artificial Narratives in Reshaping Cultural Ecology**

Understanding the transformation of traditional arts in the digital era cannot be separated from observing broader changes in the cultural ecology. In this context, cultural ecology is understood as a complex network of relationships among humans as creators and cultural agents, the natural and social environments that provide the context for creation, and cultural artifacts as both material and immaterial products of these interactions. The emergence of digital infrastructure, algorithms, and artificial intelligence has introduced new non-human actors that participate in shaping, curating,

and distributing cultural artifacts. Algorithms embedded in social media platforms, search engines, and content recommendation systems now function as cultural gatekeepers, determining which artworks gain visibility and which are submerged within the vast data landscape. This algorithmic power fundamentally alters the mechanisms of canonization in the art world, which were previously governed by critics, curators, and cultural institutions [14].

The triadic relationship among humans, environment, and cultural artifacts undergoes reconfiguration as artificially generated narratives produced by large language models become involved in the creation and interpretation of artworks. Machines have evolved beyond mere tools to become collaborators capable of generating descriptions, critiques, and even new artworks based on patterns learned from thousands of prior works. The involvement of non-human agency raises fundamental questions about creativity and originality. When an artificial intelligence system can compose a technically flawless piece of music in the style of Javanese gamelan, where does the human value lie within the creative process? This issue invites deeper discussion about the essence of art as an expression of subjective human experience [15].

The digital environment has engendered a kind of secondary ecosystem for traditional cultural artifacts. Within this ecosystem, artworks exist as dual entities: physical objects preserved in museums or community spaces, and their digital representations circulating without constraint in cyberspace. These two modes of existence exert reciprocal influence on one another. The popularity of a digital representation can revive interest in its physical counterpart; conversely, the deterioration or loss of the physical artifact no longer equates to total extinction, as it remains preserved within digital archives. However, reliance on digital infrastructure introduces new vulnerabilities. Technological obsolescence, platform insolvency, and changes in file formats threaten the sustainability of access to digitized cultural heritage. This paradox highlights that digital preservation demands material maintenance efforts that are no less complex than those required for the preservation of physical artifacts [16]

The digital infrastructure employed to disseminate traditional arts is not merely a neutral distribution channel but possesses curatorial agency that fundamentally reshapes the mechanisms of canon formation within cultural ecology. This research reveals that social media platform algorithms, particularly those operating on recommendation logic and user engagement, function as gatekeepers of a new cultural landscape, determining which artworks gain visibility and which remain obscure. The study by Edung and colleagues on the digital diaspora of Afrobeats on TikTok provides a compelling illustration of how platform algorithms act as active curators, reinforcing, simplifying, and repackaging certain cultural tropes to align with virality logic. In doing so, they often flatten the complexity of cultural expression into platform-mediated identities [17]. These findings resonate profoundly with the condition of Nusantara arts in the digital realm, where the same algorithms that enable a sacred dance from the interior of Kalimantan to be viewed by millions also possess the potential to reduce it to mere ephemeral

entertainment, detached from its cosmological roots. This algorithmic mechanism generates a paradox of accessibility, wherein the easier it becomes for traditional artworks to be accessed by a global audience, the greater the likelihood that their inherent meanings become shallow and decontextualized. Findings by Edung and colleagues reveal a feedback loop between algorithmic preferences and artistic production, whereby content creators, including those from the diaspora, consciously or unconsciously begin to adapt their cultural expressions to align with platform demands. Consequently, the cultural identities presented are simplified, memefied versions detached from their original contexts [17]. Within the Nusantara context, this phenomenon is evident in how segments of traditional dance performances uploaded to social media frequently emphasize sensational visual elements without accompanying explanations of their philosophical meanings, ritual contexts, or underlying value systems. The triadic relationship among humans as creators, the environment as the creation context, and cultural artifacts as the product of this interaction undergoes fundamental reconfiguration when non-human actors namely algorithms intervene in determining the fate and representation of these cultural artifacts. The harmonious or heterogeneous interaction among these elements influences the outcomes and determines the success of the intended objectives [18].

Although the involvement of digital technology in cultural ecology does not invariably lead to the degradation of meaning. The research conducted by Kudiya and colleagues on integrating the tacit knowledge of batik artisans into artificial intelligence-based design systems demonstrates that technology can function as a collaborative partner that enhances the artisans' roles as creative subjects rather than replacing them. Their study reveals that through narrative labeling and semantic mapping of batik's visual elements, the intuitive and experience-based knowledge of the artisans can be transformed into explicit forms, which are then incorporated into generative AI models. This process produces batik designs that preserve local authenticity while remaining visually relevant to contemporary contexts [19]. These findings establish a significant precedent that human-machine collaboration in the realm of traditional arts is feasible without compromising cultural integrity, provided that artisans are actively engaged and their creative agency is respected. Such a model offers an elegant intermediary position between the romantic rejection of technology and the pragmatic surrender to machine logic.

### **Deconstruction of Space and Time in the Spectrum of Nusantara Art: Acculturation of Local Habitus with the Logic of Technological Extension**

The dimensions of space and time, which constitute the fundamental framework of human aesthetic experience, undergo radical deconstruction in the era of technological extension. Traditional Nusantara performing arts are deeply anchored to specific spaces such as pendapa, pura, sanggar, or open fields sanctified through ritual. These spaces function not merely as geographic locations but as cosmological markers connecting the human realm with the supernatural. The timing of performances typically aligns with

agrarian or religious ritual calendars. The advent of streaming technologies and virtual reality detaches art from its original spatiotemporal context. For instance, a live broadcast of a Ngaben ceremony can be simultaneously witnessed by the Balinese diaspora across the globe, transforming an originally intimate and sacred experience into a more profane spectacle. This phenomenon creates a "third space," a liminal zone that is neither entirely physical nor purely virtual, wherein cultural meanings are renegotiated [20].

The logic of technological extension, which emphasizes speed, efficiency, and scalability, confronts local habitus formed through prolonged processes of acculturation with natural rhythms and traditions. Habitus, understood as internalized mental structures shaping how individuals perceive and respond to the world, faces challenges as instantaneous digital interaction patterns permeate daily life. Artists and their supporting communities must undertake complex cognitive adaptations. The patience required to master techniques such as hand-drawn batik contrasts sharply with the culture of scrolling that demands immediate visual gratification. Nonetheless, a reciprocal process also occurs, wherein local values find new channels of expression through digital media. Virtual communities centered on traditional art interests flourish, fostering novel forms of social solidarity [14]. The acculturation between local habitus and technological logic produces unique hybrid forms that cannot be evaluated solely by traditional parameters. International-scale traditional art festivals are now commonly organized in a hybrid manner, combining live performances on physical stages with virtual participation via video conferencing platforms. This model deconstructs the hierarchy between center and periphery, enabling art groups from remote villages in the Nusantara archipelago to perform before a global audience without leaving their communities. Such virtual mobility conserves material resources while also reducing the carbon footprint associated with conventional festival travel. However, access to technological capital remains a differentiating factor that can create new disparities. Groups with adequate digital infrastructure become increasingly connected, whereas those without are further marginalized from global discourse [21].

This study finds that the presence of digital infrastructure has radically deconstructed the spatial and temporal dimensions that constitute the fundamental framework of aesthetic and spiritual experiences in traditional Nusantara arts. Sacred spaces such as pendapa, pura, sanggar, or ritual-sanctified open grounds are no longer the sole loci of performance, as streaming technology and digital platforms allow art to be present anywhere and anytime. Consequently, art that was once closely bound to specific spatiotemporal contexts, including agrarian or religious ritual calendars, is now detached from its anchors and floats freely in cyberspace. The cultural adaptation of the Karungut art form examined by Saipul and Hamberi demonstrates that the spatial shift from sacred spaces to public arenas and digital media creates a broader and ethnically more diverse audience, yet also raises questions about how the sacrality and spiritual value of the art can be preserved when performed during Car Free Day events or viewed through digital screens [13].

The deconstruction of space and time brings into direct confrontation the local habitus, shaped through prolonged acculturation with natural rhythms and traditions, and the logic of technological extension, which emphasizes speed, efficiency, and scalability. Habitus, understood as an internalized mental structure that shapes how individuals perceive and respond to the world, faces challenges as instantaneous digital interaction patterns permeate the daily lives of traditional artists. The patience required to master techniques such as hand-drawn batik or gamelan playing over many years contrasts sharply with the scrolling culture that demands immediate audiovisual gratification. Nonetheless, this study also reveals that the process of acculturation between local habitus and technological logic does not invariably produce destructive tension but can also generate productive hybridity. The findings of Kudiya and colleagues, demonstrating that batik artisans can collaborate with artificial intelligence to develop new designs, illustrate that technology can be harmonized with local rhythms and values rather than imposing foreign logics that displace traditional practices [19].

At a broader level, the acculturation between local habitus and the logic of technological extension creates what Holst and Bekmeier-Feuerhahn (2025) conceptualize as a space of potentialization, a liminal space where new artistic possibilities are explored without completely abandoning traditional roots. Traditional art festivals, now commonly organized in hybrid formats that combine live performances on physical stages with virtual participation via video conferencing platforms, exemplify this liminal space. This hybrid model deconstructs the hierarchy between center and periphery, enabling artistic groups from remote villages in the Nusantara archipelago to perform before a global audience without leaving their communities. Nevertheless, access to technological capital remains a differentiating factor that may generate new disparities, whereby groups with adequate digital infrastructure become increasingly connected, while those without risk further marginalization from global discourse. Consequently, policy support and funding must prioritize grassroots art communities to ensure that the democratic potential offered by digital technology does not instead transform into a mechanism of exclusion that exacerbates inequality [12].

### **The Crisis of Knowledge Authority and the Reproduction of Meaning: Resistance and Negotiation of Artists Against Artificial Narratives in the Grip of Digital Infrastructure**

Digital infrastructure dominated by a handful of major technology corporations has engendered a crisis of knowledge authority within the realm of arts and culture. For centuries, knowledge concerning traditional Nusantara arts has been preserved and transmitted through mentor-apprentice systems, lineage, or customary institutions endowed with cultural legitimacy. Today, this authority confronts search engines that treat all sources of information equally, without distinguishing depth or validity. Generative artificial intelligence produces artificial narratives that can explain the symbolic meaning of batik parang or the philosophy of wayang kulit within seconds, surpassing the capacity of a master artisan who requires decades to master such

knowledge. Although the rapid production of these narratives often sacrifices accuracy and contextual depth, it possesses a far greater and more effective dissemination power in shaping public perception [22].

Traditional art practitioners respond to this situation with diverse strategies reflecting their positions within the contestation of digital cultural discourse. Some adopt a resistance approach by reinforcing knowledge transmission through conventional channels and rejecting digital documentation of works deemed sacred. This stance stems from the awareness that not all cultural knowledge can or should be transformed into digital formats without violating customary protocols. Others pursue a more accommodative negotiation strategy, utilizing digital platforms to disseminate educational content directly controlled by the knowledge-owning communities. This latter model aims to reclaim narrative authority from machines and restore it to the rightful cultural subjects. These two strategies are not mutually exclusive options but rather represent a spectrum of responses contingent upon the specific contexts of each community [16].

The most critical issue arising from AI-based meaning reproduction is the loss of the emic dimension, that is, understanding from the insider's perspective. Algorithms operate based on pattern recognition and statistical correlations rather than on meaning derived from participatory lived experience. Such systems can identify and replicate the visual structure of Toraja carving motifs but do not comprehend the cosmological consciousness underpinning their creation. Consequently, widely circulated AI-generated narratives often present knowledge that appears superficially convincing but is substantively devoid of its cultural essence. This situation poses new challenges for arts education and cultural preservation, necessitating that younger generations be equipped with critical digital literacy and the ability to verify knowledge sources amid an overwhelming influx of information [14].

The digital infrastructure dominated by a handful of major technology corporations has precipitated an acute crisis of knowledge authority within the Nusantara arts and culture domain. For centuries, knowledge of traditional arts has been safeguarded and transmitted through guru-disciple systems, lineage, or customary institutions possessing cultural legitimacy. Today, this authority confronts search engines and generative artificial intelligence capable of producing narratives about the symbolic meanings of batik motifs or the philosophy of wayang performances within seconds surpassing the capacity of a maestro who requires decades to master such knowledge. Research by Kudiya and colleagues highlights this issue by emphasizing that the knowledge of batik artisans is largely tacit, intuitive, experience-based, and embedded within personal skills that are not easily articulated or reducible to machine-processable data [19]. As a result, AI-generated narratives concerning traditional arts often seem convincing on the surface but are substantively lacking in the emic dimension or insider perspective.

The crisis of authority also extends to the domain of digital documentation and preservation. The study conducted by Jamilah and colleagues on the utilization of artificial intelligence in documenting the Pattennung Dance from South Sulawesi demonstrates that, although technologies such as motion reconstruction, cultural databases, and virtual reality offer promising prospects for the preservation of cultural heritage, their implementation carries significant risks. These risks include commodification, the reduction of the dance's rich philosophical meanings, and the potential distortion of its historical context [23]. The researchers emphasize that community involvement and ethical considerations in the development of AI applications are essential prerequisites to ensure that the true essence of cultural heritage, exemplified by the Pattennung Dance, is maintained. These findings align with the study by Rafianti and colleagues, which asserts that sustainable digitization requires multi-stakeholder collaboration involving artists, communities, academics, government, and technology practitioners to guarantee that authentic cultural values remain central throughout the digital transformation process [24].

Confronted with this crisis of authority, traditional art practitioners have responded with a range of strategies spanning the spectrum between resistance and negotiation. Some communities opt for resistance by reinforcing the transmission of knowledge through conventional channels and rejecting digital documentation of elements deemed sacred. This stance arises from the awareness that not all cultural knowledge can be transformed into digital formats without violating customary protocols. This resistance strategy aligns with the scaling orientation within Holst and Bekmeier-Feuerhahn's framework, which emphasizes the preservation of continuity and the protection of established formats [12]. Conversely, other communities adopt a more accommodative negotiation strategy, utilizing digital platforms to disseminate educational content while maintaining narrative control directly within the knowledge-owning communities. This second strategy corresponds more closely to the potentialization orientation, which views digitality as a space for artistic exploration and the re-creation of cultural expressions. These strategies are not mutually exclusive options but rather contextual choices made by different communities according to the sanctity of the knowledge they safeguard, their technological capacities, and the audiences they seek to engage.

Ultimately, the issue of meaning reproduction in the era of generative artificial intelligence necessitates the development of ethical frameworks and cultural policies that go beyond merely promoting digitalization without critical reflection. Instead, these frameworks must consciously establish a buffer zone between sacred knowledge and the profane digital realm. The study by Rafianti et al. (2026) identifies key challenges in the digital preservation of traditional arts, including digital literacy gaps, inadequate infrastructure, financial constraints, and intellectual property risks. Addressing these challenges requires culturally sensitive approaches supported by robust institutional frameworks and multi-stakeholder coordination to prevent digitalization from devolving

into cultural appropriation and the decontextualization of meaning, which ultimately harm knowledge-holding communities [24]. Similarly, Jamilah et al. (2025) emphasize that collaboration among cultural practitioners, technology experts, and local communities is crucial for artificial intelligence to serve as a strategic asset in preserving traditional arts rather than becoming a foreign force that distorts and erodes cultural heritage from within. Consequently, the future of Nusantara's traditional arts in this era of technological extension will not be determined by technology itself but rather by the capacity of cultural actors, policymakers, and the broader society to continuously and critically negotiate, with ethical and creative sensibilities, the balance between permanence and change, the sacred and the profane, and the local and the global [23].

## CONCLUSION

**Fundamental Finding:** The conclusion of this study affirms that the transformation of traditional Nusantara artistic practices in the era of technological extension is not a linear event merely replacing the old with the new. Rather, it constitutes a profound ontological negotiation process. Authenticity can no longer be understood as a timeless purity; it has shifted into a contested terrain that is continuously revised and negotiated at the intersection of local habitus and digital logic. These findings also demonstrate that traditional artists are not merely passive victims of technological onslaughts but active subjects weaving strategies of resistance and negotiation to preserve cultural spirit amid the advancing algorithms. **Implication:** The practical implications of this study emphasize the urgent need to design an ethical framework and cultural policies that do not promote digitalization unreflectively but consciously establish buffer zones between sacred knowledge and the profane digital realm. Stakeholders including indigenous communities, artists, government bodies, and technology platform designers must collaboratively formulate documentation and dissemination protocols that respect local knowledge hierarchies and safeguard emic dimensions from the erosion caused by instantaneous artificial narratives. **Limitation:** This research reveals that the presence of algorithms and artificial narratives has given rise to non-human actors that actively reshape the cultural ecology, creating new power relations that challenge the authority of traditional knowledge and reduce the depth of emic dimensions into calculable surface data. On the other hand, the deconstruction of space and time caused by digital infrastructure has unsettled the cosmological foundations of Nusantara art, yet paradoxically also opens possibilities for the emergence of a liminal third space where hybrid meanings thrive beyond previously impermeable geographical and cultural boundaries. **Future Research:** In the fields of art education and digital literacy, this research advocates for the development of new curricula that equip younger generations with dual sensibilities: the capacity to delve deeply into ancestral cosmologies and the critical acumen to interrogate and deconstruct machine-generated artificial narratives. For digital infrastructure designers, the findings provide a foundation to develop algorithmic curatorial systems that honor locality and offer

visibility to marginalized voices, rather than merely reproducing trend logics and instant engagement that flatten meaning.

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