

ORIGINAL

## Land, Hands, And Speech: Ethnography of Communication in The East Sumba Ikated Weaving Tourism Ecosystem

### Tierra, manos y habla: Etnografía de la comunicación en el ecosistema turístico de tejido ikated de Sumba Oriental

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**Cite as:** Lestari LI, Sugiana D, Novianti E, Siti Khadijah UL. Land, Hands, And Speech: Ethnography of Communication in The East Sumba Ikated Weaving Tourism Ecosystem. Salud, Ciencia y Tecnología. 2025; 5:1758. <https://doi.org/10.56294/saludcyt20251758>


Submitted: 21-11-2024

Revised: 03-03-2025

Accepted: 28-06-2025

Published: 29-06-2025

Editor: Prof. Dr. William Castillo-González 

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#### ABSTRACT

Digitization of cultural narratives and ikat weaving product metadata plays a strategic role in promoting East Sumba's cultural heritage globally. This study aims to examine the influence of digitization on the development of Information and Communication Technology (ICT) in supporting the tourism ecosystem, as well as its impact on the existence and competitiveness of ikat weaving-based tourism. Using the Systematic Literature Review (SLR) approach, this study collects and analyzes various literature related to cultural digitization, product metadata, and the role of ICT in the preservation and development of cultural tourism. The results of the study show that digitization of cultural narratives expands the reach of information about the values, meanings, and philosophies of ikat weaving more effectively. Product metadata embedded in digital platforms increases the accessibility of information for tourists, industry players, and researchers. The use of ICT, such as social media and augmented reality technology, has also been shown to increase the effectiveness of promotion and marketing. In addition to supporting cultural preservation, digitization also strengthens local identity and opens up opportunities for sustainable tourism development. With an integrated digital approach, the introduction of local culture becomes more inclusive, attracts tourists, and creates added value for local communities. Overall, digitization is a major driver in the transformation of the cultural tourism ecosystem in East Sumba to be more adaptive and competitive in the global era.

**Keywords:** Digitalization of Cultural Narratives; Metadata of Woven Products; ICT; Competitiveness of Tourism Ecosystem.

#### RESUMEN

La digitalización de las narrativas culturales y los metadatos de los productos del tejido ikat desempeña un papel estratégico en la promoción global del patrimonio cultural de Sumba Oriental. Este estudio busca examinar la influencia de la digitalización en el desarrollo de las Tecnologías de la Información y la Comunicación (TIC) para el ecosistema turístico, así como su impacto en la existencia y competitividad del turismo basado en el tejido ikat. Mediante el enfoque de Revisión Sistemática de la Literatura (RSL), este estudio recopila y analiza diversas publicaciones relacionadas con la digitalización cultural, los metadatos de los productos y el papel de las TIC en la preservación y el desarrollo del turismo cultural. Los resultados del estudio muestran que la digitalización de las narrativas culturales amplía el alcance de la información sobre los valores, significados y filosofías del tejido ikat de forma más eficaz. Los metadatos de los productos integrados en plataformas digitales aumentan la accesibilidad a la información para turistas, actores del sector e investigadores. El uso de las TIC, como las redes sociales y la realidad aumentada, también ha

demostrado aumentar la eficacia de la promoción y el marketing. Además de apoyar la preservación cultural, la digitalización también fortalece la identidad local y abre oportunidades para el desarrollo turístico sostenible. Con un enfoque digital integrado, la introducción de la cultura local se vuelve más inclusiva, atrae turistas y genera valor añadido para las comunidades locales. En general, la digitalización es un motor clave en la transformación del ecosistema de turismo cultural en Sumba Oriental para que sea más adaptable y competitivo en la era global.

**Palabras clave:** Digitalización de Narrativas Culturales; Metadatos de Productos Tejidos; TIC; Competitividad del Ecosistema Turístico.

## INTRODUCTION

Digital transformation and cultural globalization make preserving cultural heritage a complex challenge as well as a strategic opportunity especially in relation to the development of the tourism ecosystem.<sup>(1)</sup> The existence of cultural heritage, such as East Sumbanese ikat weaving, is no longer seen merely as a symbol of local identity, but has developed into a leading element in tourism that emphasizes values and narratives.<sup>(2)</sup> Great potential emerges through the digitalization of cultural narratives and woven product metadata in creating an Information and Communication Technology (ICT) system that is able to support efforts to preserve, promote, and market cultural heritage to the global level.<sup>(3)</sup>

Communication plays a central role in the cultural heritage tourism ecosystem.<sup>(4)</sup> Alvarez et al. revealed that cultural preservation in the tourism ecosystem is a complex interaction arena, where the government, local communities, and tourists interact with each other in exchanging information and forming cultural narratives.<sup>(5)</sup> Optimally digitized cultural narratives can reach a wider audience, strengthening the image of local culture,<sup>(6)</sup> as well as increasing the attractiveness of culture-based destinations.<sup>(7)</sup> Communication functions not only as a conveyor of messages,<sup>(8)</sup> but also as a strategic instrument in building synergy and strengthening the existence of cultural heritage amidst the current of modernization.<sup>(9)</sup>

East Sumbanese ikat weaving is an example of a cultural heritage that is full of symbolic, aesthetic, and historical values. Its motifs act as a “visual narrative” that records the history, values, and philosophy of life of the East Sumbanese people.<sup>(10)</sup> The product metadata digitalization approach that includes information on motifs, materials, coloring techniques, and cultural narratives allows ikat weaving to be transformed into communicative, educational, and interesting digital content for domestic and foreign tourists.<sup>(4)</sup>

Major challenges still loom over the development of cultural tourism in East Sumba, which has not received the same attention as natural tourism.<sup>(11)</sup> Promotion of nature tourism is easier to do through social media because of its visual appeal and instant character.<sup>(12)</sup> The potential of “land,” “hands,” and “speech” of ikat weaving has not been communicated optimally in digital and narrative forms. The visit of President Joko Widodo, who was greeted with ikat weaving, became a strong symbolic momentum.<sup>(13)</sup> This momentum needs to be translated into a systematic and inclusive digital and communication strategy to have a real impact at the local to global level.<sup>(14)</sup>

Digitizing cultural narratives and product metadata opens up huge opportunities to bridge this gap.<sup>(15)</sup> Metadata of woven products containing the name of the motif, origin, manufacturing process,<sup>(16)</sup> so that the philosophy behind its color and shape can be managed through an integrated information and communication technology approach.<sup>(17)</sup> This process will facilitate cultural interpretation and increase the accessibility of information.<sup>(18)</sup> In addition to increasing the attractiveness and selling value of cultural products, this effort also strengthens the position of East Sumba ikat weaving as a national cultural identity that is able to compete globally.<sup>(19)</sup>

Digitization of metadata and cultural narratives also encourages the realization of a contextual and participatory cultural heritage-based ICT system. The use of digital platforms such as social media, cultural promotion websites, and integrated tourism information systems allows the woven ikat narrative to be packaged in the form of documentary videos, interactive infographics, or augmented reality-based tourism applications. These efforts bring tourists closer to authentic and educational cultural experiences.

This study uses an ethnographic communication approach to explore how the “narration” of ikat weaving cultural heritage is constructed, communicated, and perceived in the digital era. The focus of the study also includes the extent to which digitalization is able to strengthen the ICT ecosystem in supporting the existence of local culture and increasing the competitiveness of cultural heritage-based tourist destinations. In the context of the modern tourism industry, the superiority of a destination does not only depend on physical beauty, but also on the richness of cultural narratives and the power of accompanying digital communication.<sup>(20)</sup>

## THEORETICAL REVIEW

### Cultural Communication

Cultural communication is a dynamic and complex process involving the exchange of messages and the construction of meaning among individuals or groups who share, or differ, cultural backgrounds. This process is not simply conveying information literally, but includes symbolic, contextual, and emotional dimensions contained in a particular cultural system such as language, values, norms, customs, rituals, and other cultural artifacts.<sup>(21)</sup> In this framework, communication is understood as a relational and intersubjective activity, where meaning is formed, negotiated, and interpreted in a specific cultural context. Therefore, cultural communication functions as an arena for encounters between perspectives that not only enrich cross-cultural understanding, but also broaden the horizon of meaning in social interaction.<sup>(21,22)</sup> Moreover, cultural communication plays an important role in the preservation and transmission of cultural identity. It acts as a medium for the inheritance of noble values, local knowledge, and collective history from one generation to the next. In a global context characterized by high mobility and cross-border interaction, cultural communication becomes the foundation for building bridges of tolerance, mutual understanding, and collaboration between nations.<sup>(23,24,25)</sup> Competence in cross-cultural communication is even considered a strategic asset in the global workplace and economy, as it enables individuals and institutions to adapt effectively in multicultural and transnational environments.<sup>(26)</sup>

From the perspective of communication philosophy, this approach rejects the notion that communication is a neutral or value-free process. Instead, communication is always shaped by the value structures, social norms, and cultural symbols that exist in a society.<sup>(27)</sup> Therefore, communication is seen as a social construction that helps shape social reality, power structures, and individual and collective identities.<sup>(28,29)</sup> Thus, the cultural communication approach invites us to critically explore how social interactions are shaped by cultural forces, and how communication can be used as an inclusive means to bridge differences, voice diversity, and build solidarity in a global society that is interconnected and mutually influencing.<sup>(30)</sup>

### Tourist

Tourism is seen as a complex social and economic phenomenon, centered on human mobility for recreation and cultural exploration, while also acting as a catalyst for economic growth while presenting challenges for environmental and cultural preservation; therefore, tourism sustainability is an important paradigm that demands a balance between economic, social, cultural and environmental benefits in the long term.<sup>(31,32,33,34)</sup> However, there are six main challenges in tourism sustainability, namely environmental impacts,<sup>(35)</sup> over tourism,<sup>(36)</sup> socio-cultural impact,<sup>(37)</sup> economic dependence,<sup>(38)</sup> local community involvement,<sup>(39)</sup> and tourist awareness.<sup>(40)</sup> Facing these challenges requires active synergy between government, industry, local communities, and tourists through sustainable policies, tourist education, adaptive management, and community participation.<sup>(41,42,43,44,45,46)</sup>

### Cultural Heritage

Cultural heritage includes values, traditions, language, art, architecture and historical objects that form a collective identity and are a source of knowledge about the journey of human civilization.<sup>(47)</sup> It plays an important role in shaping communal identity, maintaining cultural expression, and encouraging cross-generational understanding.<sup>(48)</sup> This heritage also reflects the symbolic meaning and cultural values that have developed throughout history.<sup>(49,50)</sup> Preserving cultural heritage strengthens collective identity,<sup>(51)</sup> enriching historical insight,<sup>(49,51)</sup> become a source of artistic and creative inspiration,<sup>(51,52)</sup> as well as supporting the tourism and creative industry sectors.<sup>(53)</sup> In addition, cultural heritage fosters intercultural tolerance.<sup>(54)</sup> Conservation efforts not only protect valuable objects but also maintain collective memory, traditional skills, and noble values amidst global dynamics.<sup>(49,50,52,53,55)</sup> Optimizing the tourism sector through the management of historical sites, festivals and museums enriches the tourist experience and drives the local economy.<sup>(55)</sup>

The success of preservation depends on collaboration between government, communities and the tourism industry to maintain cultural and economic continuity.<sup>(55,56)</sup> In Indonesia, cultural heritage is reflected in the richness of ethnicity, art, architecture, traditions, and cuisine, with icons such as Borobudur, Prambanan, Tana Toraja, gamelan, traditional dance, and batik recognized by UNESCO.<sup>(57)</sup> Conservation efforts in Indonesia are supported through government programs and innovative communication strategies to increase public participation.<sup>(58)</sup> Through effective preservation, education, and promotion, Indonesia's cultural heritage can live on, strengthening the sustainable tourism sector, enriching the local economy, and contributing to global development and world cultural appreciation.

### Destination Image

Destination image is a complex and multidimensional mental construction that shapes potential tourists' perceptions of a destination, and has a strategic role in the tourism industry because it influences preferences and visiting decisions.<sup>(59)</sup> Empirical research shows that a positive destination image, as evidenced by Baloglu and McCleary (1999) in Türkiye,<sup>(60)</sup> Kim and Richardson (2003) in Bali,<sup>(61)</sup> and Pham and Jang (2019) in Vietnam,<sup>(62)</sup> has a major influence on the intention to visit. Factors such as previous travel experiences, interpersonal

recommendations, service quality, security, cultural richness, and competitive prices also shape tourists' perceptions, as found by Fuchs and Reichel (2011) in Germany,<sup>(63)</sup> Hosany, Prayag, and Deesilatham (2014) in Mauritius,<sup>(64)</sup> Gursoy and McCleary (2004) in Hong Kong,<sup>(65)</sup> and Chien and Law (2003) in Asia.<sup>(66)</sup> As a synthesis, destination image is collectively influenced by multidimensional factors that interact and impact tourist decisions, satisfaction levels, and revisit intentions, so that a deep understanding of this concept becomes strategic in designing innovative tourism communications and increasing destination competitiveness globally.

### **Ikat Weaving Culture**

Ikat weaving is a noble technique in traditional textile arts that involves a complex process of manually tying threads before they are woven into cloth, deeply rooted in communities around the world such as Indonesia, Japan, India, and South America.<sup>(67)</sup> The production process starts from fiber selection, yarn spinning, dyeing with natural and synthetic colors, to precision binding that produces meaningful motifs which are then woven using traditional tools.<sup>(67)</sup> The richness of symbolism in ikat woven motifs, such as the representation of horses and birds in the Sumbanese tradition that symbolize strength and social status, distinguishes it as a unique expression of cultural identity, with motifs categorized as figurative, schematic, or acculturative.<sup>(68)</sup> In addition to the visual aspect, the production of ikat weaving functions as a collective activity that strengthens social relations and becomes a means of cultural transmission between generations.<sup>(69)</sup> In East Sumba, five main centers, namely Tenun Kambara, Pahikung, Rende, Kanatang, and Kaliuda, consistently maintain traditions while supporting the development of a community-based cultural tourism ecosystem. Ikat weaving is not only an aesthetic artifact, but also a means of cultural expression that strengthens community identity, supports sustainable socio-economic development, and emphasizes East Sumba's strategic position as a center for the development of ikat weaving rich in symbolism, noble traditions, and deep historical narratives.

### **METHOD**

This research uses the Systematic Literature Review (SLR) approach,<sup>(70,71,72)</sup> to explore and analyze comprehensively how the digitalization of cultural narratives and woven product metadata impacts the development of Information and Communication Technology (ICT) in the tourism ecosystem, as well as its implications for the existence and competitiveness of ikat-based tourism in East Sumba. The SLR approach was chosen because it is able to provide a comprehensive, structured, and verified synthesis of knowledge from relevant scientific literature.

This study aims to identify the relationship between the digitalization of cultural narratives and product metadata with the strengthening of information and communication technology (ICT) systems in the tourism ecosystem, analyze the impact of the application of culture-based ICT on the existence and competitiveness of ikat weaving as a cultural tourism asset, and develop a conceptual framework that can be used as a reference in developing contextual digital communication and information technology strategies for cultural preservation in East Sumba.

This SLR study focuses on answering several main questions, namely: how does the digitalization of cultural narratives and product metadata affect the development of ICT systems in the context of cultural tourism; what is the impact of the implementation of digitalization on the existence and competitiveness of the ikat-based tourism ecosystem; and what digitalization strategies or approaches have proven effective in supporting the promotion and preservation of cultural heritage.

Literature collection was conducted from various trusted academic databases such as Scopus, Web of Science, ScienceDirect, SpringerLink, Google Scholar, Garuda, and Neliti, using keywords such as "Cultural narrative digitization", "Textile metadata and tourism", "Digital heritage and ICT", "Cultural tourism competitiveness", and "Tenun ikat AND digitalization AND tourism". The included literature must be published in the last ten years (2014-2024), focus on cultural digitization, traditional product metadata, cultural tourism, and ICT, and be in the form of relevant empirical studies, reviews, or case studies; while articles that are not in English or Indonesian or that are not relevant to aspects of digitalization or cultural tourism are excluded.

The SLR process is carried out in five stages, namely:<sup>(72)</sup> identification of literature by searching sources according to inclusion criteria; selection of literature based on the relevance of the title, abstract, and content of the article; data extraction to classify important information such as context, methods, main findings, and recommendations; thematic analysis to group studies into main themes such as digitalization of cultural narratives, product metadata, implementation of ICT in tourism, and sustainability of cultural heritage; and narrative synthesis to critically summarize and build a theoretical framework from all findings.

### **RESULTS**

This study adopts a Systematic Literature Review (SLR) approach to explore the influence of digitalization of cultural narratives and woven product metadata on Information and Communication Technology (ICT) in the tourism ecosystem, as well as its impact on the existence and competitiveness of the ikat weaving tourism ecosystem in East Sumba.

Table 1. Selected Studies

No	Researchers & Years	Focus	Method	Results
1	Sina & Tefa, (2020)	The focus of this research is to evaluate the performance of the Trade, Cooperatives and Small and Medium Enterprises (SMEs) Service in Sikka Regency, especially in efforts to preserve Sikka ikat weaving, by exploring the efforts, obstacles, and participation of weavers in the process.	Qualitative using descriptive methods with an inductive approach	The preservation of ikat weaving has been underway but there are still several inhibiting factors. In addition to government efforts, weavers must also actively participate in order to achieve the goals of the process to be achieved. <sup>(73)</sup>
2	Elvida, (2015)	The focus of this research is the preservation and meaning of ikat woven fabrics in Wololora Village, Maumere, as part of the cultural heritage of the archipelago.	Qualitative descriptive	The results of the study show that women's involvement in the craft of ikat weaving in Wololora Village not only has economic value, but also contains philosophical and symbolic meanings, including history, culture, life values, village identity, morals, and social. The change in materials from basic cotton to factory materials also reflects changes in the production process of ikat woven fabrics. <sup>(74)</sup>
3	Pakereng & King, (2023)	The focus of this research is to explore and analyze the implementation of bootstrap financing as a capital raising strategy in ikat weaving companies.	Qualitative	The results of the study indicate that the use of bootstrap financing strategies, including independent funding and receivables management, can be an effective alternative to reduce dependence on external funding. The application of various bootstrap financing strategies in the context of the ikat weaving business can provide insight into the diversity of approaches that can be taken by business actors. <sup>(75)</sup>
4	Ambasta & Viswanathan, (2023)	The focus of this research is to conduct case studies of three indigenous ikat weaving traditions in India.	Qualitative	The research results provide an in-depth understanding of the differences and similarities in ikat weaving practices between the three indigenous traditions in India, and reflect the importance of cultural heritage in the sustainability of ikat weaving practices. <sup>(76)</sup>
5	The Promised Neverland, (2023)	The focus of this research is the decline in the number of weavers in Julah Village, North Bali, especially related to traditional ikat cloth crafts.	Qualitative	The research results identified the absence of regeneration in the inheritance of ikat weaving skills as the main factor, and the paper presents a solution through the 'Jari Manis' strategy of socialization, enculturation, and collaboration to encourage the interest of the younger generation and strengthen the sustainability of the craft. <sup>(77)</sup>
6	Auzia & Arief, (2023)	The focus of this study is to assess the influence of social media and brand image on purchasing decisions through consumer motivation in the ikat weaving industry.	Quantitative	The results of the study show that social media and brand image have a positive and significant influence on purchasing decisions through consumer motivation in the ikat weaving industry. <sup>(78)</sup>
7	Suriyani et al., (2023)	The focus of this research is on efforts to increase capacity in the Weaving Group at the Jata Kapa Ikat Weaving Center, Sikka, East Nusa Tenggara, by utilizing human, business, environmental, and institutional development programs.	Qualitative descriptive	The results showed success in empowering weaver groups, but also identified several dimensions of the program that needed improvement. <sup>(79)</sup>
8	Istikomayanti et al., (2023)	The focus of this research is to describe the potential of ikat weaving using natural plant dyes as part of ethnobiology, especially ethnobotany in the Sumba ethnic community in East Nusa Tenggara.	Ethnography with interpretive design	Integration of ikat weaving into subjects such as science and other areas of study was identified as a significant opportunity to enhance the learning process. <sup>(80)</sup>



Table 1. Selected Studies

No	Researchers & Years	Focus	Method	Results
9	Sukarini, (2022)	The focus of this research is to explore the motifs and colors of endek, a traditional Balinese ikat woven fabric, with an emphasis on appreciation of nature, culture, and philosophy.	Qualitative	The motifs and colors of endek produce a deep understanding of the cultural and philosophical values reflected in the work. <sup>(81)</sup>
10	Kaja et al., (2022)	The focus of this research is to analyze the impact of the ikat weaving business on the economy of the people of Ensaid Panjang Village, Kelam Permai District, Sintang Regency.	Ethnography and qualitative approaches	The research results highlight the positive impact of ikat weaving on the economic aspects and cultural values of the Dayak community in the village. <sup>(82)</sup>
11	Liubchanskiy & Yurin, (2019)	The focus of this research is to reveal the significance of cultural heritage through the discovery of ornithomorph “hoards” in the Northern region of the Southern Trans-Urals, using an ethnographic approach.	Qualitative	The research results include the discovery of rare archaeological material of ornithomorphs in the Chelyabinsk forest-steppe region that extends the influence of the Itkul archaeological culture to the south. <sup>(83)</sup>
12	Akinruli & Akinruli, (2018)	This research focuses on ethnographic practices in the context of cultural heritage studies, with an emphasis on museum collections, specifically the “Museu Casa de Lembranças e Memórias Chico Xavier” in Uberaba, Minas Gerais, Brazil.	Qualitative	The results of this study identify interactions, reflections, communications and social representations of cultural heritage in the form of immaterial objects and practices, providing in-depth insights into the process of museisation. <sup>(84)</sup>
13	Salerno, (2014)	This research focuses on a participatory ethnographic approach in embracing multiple perspectives and voices in the presentation and understanding of cultural heritage through audio-visual tools.	Qualitative	This research successfully created an inclusive museum experience and stimulated public participation in appreciating and exploring cultural heritage through personal narratives. <sup>(85)</sup>
14	Agius et al., (2014)	This research focuses on the central role of the sea in connecting individuals, economies, and cultures in the Mediterranean and Red Sea regions.	Ethnography	These findings present the results of collaborative studies from various disciplines, including archaeology, history, ethnography, maritime studies, and heritage, to understand the impact of the sea on the lives of coastal communities. <sup>(86)</sup>
15	Butler, (2007)	This study focuses on the analysis of the revival of cultural heritage and museum memory in Alexandria through an ethnographic approach. By detailing the original myth of the Alexandria project, this study highlights the evolution of the concept of Alexandria as the heir to the Greek heritage, then examines contemporary attempts to reconstruct the myth with more emphasis on the Egyptian aspects.	Ethnography	The results provide a better understanding of the interactions between cultural heritage, museum memory and identity construction in the context of the Alexandria project. <sup>(87)</sup>

Several previous studies have examined various aspects related to ikat weaving, providing valuable insights into the dynamics of this industry. Several studies have focused on the history and development of ikat weaving techniques in various regions, highlighting the uniqueness of each tradition and design pattern. These analyses illustrate the complexity of the cultural heritage contained in each ikat fabric, creating a deeper understanding of the diversity that exists in Indonesia's ikat weaving heritage.

## DISCUSSION

Sina & Tefa evaluates the performance of local governments in preserving ikat weaving in Sikka. The results show that the success of preservation depends on government support and the active participation of weavers.<sup>(73)</sup> In their research, it was found that the success of preserving this traditional culture does not only depend on formal government policies, but is also greatly influenced by the active involvement of local weavers. Government support in the form of regulations, facilities, and empowerment programs turned out to be important factors that provide a strong foundation for the sustainability of this cultural heritage.<sup>(88)</sup> On the

other hand, the active participation of the weaving community shows that cultural preservation is not only an institutional task, but a collective movement involving various levels of society. The close relationship between official institutions and local communities shows how the synergy between formal structures and grassroots strength is the main foundation in maintaining the existence of local culture.<sup>(89)</sup> This finding underlines the importance of the role of institutions and communities in maintaining cultural sustainability, an aspect that is very relevant in the context of developing an Information and Communication Technology (ICT) system based on cultural narratives in the tourism ecosystem.<sup>(90)</sup> By building an ICT system based on authentic cultural narratives and strengthening community networks, the local culture-based tourism ecosystem such as Sikka ikat weaving can be strengthened, not only for the sake of preservation, but also to increase competitiveness amidst the global dynamics of creative tourism.

Elvida emphasizes the philosophical values and local identity in Wololora ikat woven cloth.<sup>(74)</sup> This study examines in depth how ikat woven fabrics not only function as cultural products, but also as a medium to convey life values, local wisdom, and the collective identity of the community. Through this approach, Elvida highlights that the digitalization of cultural narratives has great potential to elevate the deep meaning of woven fabrics, thereby strengthening the existence of local culture in digital tourism platforms.<sup>(91)</sup> By packaging stories, symbols, and cultural meanings into an attractive and easily accessible digital form, the existence of Wololora ikat woven fabrics can be maintained and promoted to a wider audience, supporting the preservation and strengthening of cultural competitiveness in the era of globalization.

Pakereng & Radja found that bootstrap financing helped ikat weaving businesses survive independently.<sup>(75)</sup> This finding provides an important picture that the economic independence of cultural communities is not only relevant for the sustainability of independent businesses, but must also be an integral part in formulating strategies to strengthen the Information and Communication Technology (ICT) ecosystem. Integration of aspects of economic independence can strengthen the resilience and sustainability of the ICT ecosystem in supporting the development of local cultures such as ikat weaving.

Ambasta & Viswanathan compare three ikat weaving traditions in India, emphasizing local differences.<sup>(76)</sup> This study shows how cultural context, manufacturing techniques, and traditional values shape the distinctive character of each ikat weaving tradition. Their findings are highly relevant for the conceptual framework in developing digital narratives of East Sumbanese ikat weaving, which must also take into account local specificities. By understanding and highlighting the unique aspects of local culture, digitalization of ikat weaving narratives can be done more authentically and contribute to the preservation of local cultural identity.

Pramiswara & Mardika revealed that regeneration of weavers is important for the sustainability of ikat weaving culture.<sup>(77)</sup> They stated that without any effort to involve the younger generation, the sustainability of this tradition will face major challenges in the future. In this context, digitalization is seen as a strategic tool that not only functions to document and promote cultural heritage, but also to educate and attract the interest of the younger generation. By utilizing digital platforms, the ikat weaving culture can be introduced more widely and attractively, thus strengthening its existence amidst the changing times.

Auzia & Arief show that social media and brand image improve purchasing decisions.<sup>(78)</sup> This finding strengthens the idea that the use of product metadata and digital branding strategies can contribute to increasing the competitiveness of cultural products, especially in the context of Information and Communication Technology (ICT)-based tourism. By strengthening product identity through social media and building a positive brand image, cultural products such as ikat weaving can gain wider attention in the tourism market, while maintaining their existence amidst global competition.

Suriyani et al. show the importance of empowering weaving groups through business innovation.<sup>(79)</sup> In this study, they explained that success in developing the weaving industry does not only depend on product quality, but also on the application of innovations that can support the sustainability and competitiveness of weaving groups. One important aspect found is the importance of integrating technology-based innovations into digital cultural communication strategies. These innovations not only include the use of technology to improve production and distribution processes, but also to optimize the way weaving culture is communicated to the public, both through digital platforms and social media.<sup>(92)</sup> This approach allows weaving groups to more easily access a wider market and introduce their products in a more efficient and attractive way, while maintaining and elevating the cultural values contained in the woven products.

The eighth study, Istikomayanti et al. found the potential of ikat weaving as a source of ethnoscience learning.<sup>(80)</sup> These findings provide new insights into how cultural products, such as ikat weaving, can be utilized in educational contexts, particularly in ethnoscience learning. The study shows that ikat weaving is not only a cultural heritage, but also has educational value that can enrich students' understanding of local science and culture. These findings open up significant opportunities to integrate educational content in the digitalization of cultural narratives. By combining cultural and educational aspects, the digitalization of cultural narratives can be an effective means of introducing cultural values to the younger generation. In addition, it can also provide added value to cultural products such as ikat weaving, which in turn can strengthen the attractiveness

and economic potential of these products in the global market. The integration of educational content in digitalization not only introduces cultural products, but also increases public awareness and understanding of the importance of cultural preservation through an innovative approach that is relevant to current technological developments.

Sukarini deepens the meaning of endek motifs and colors, emphasizing the relationship between works of art and the philosophy of life.<sup>(81)</sup> This study reveals how each design element on endek cloth is not only an aesthetic element, but also reflects the philosophical values upheld by the community that makes it. In this context, Sukarini's research highlights the importance of digital documentation of cultural art works, especially those that are contextual and interpretive. This makes a significant contribution to the development of cultural product metadata, which not only functions as technical information, but also as a means to convey deeper meaning and cultural relevance of the work.

Kaja et al. analyzed the economic impact of ikat weaving on society.<sup>(82)</sup> In this study, the researcher focuses on how ikat weaving, as a local cultural product, can contribute to the economy of communities involved in the production and trade of ikat weaving. The main findings of this study support the idea that strengthening the culture-based Information and Communication Technology (ICT) ecosystem, especially those related to ikat weaving products, can drive local economic growth. By utilizing digital technology to introduce and market ikat weaving products more widely, local communities can increase their competitiveness and market access, which in turn can contribute to increased income and job creation.<sup>(93)</sup> This study shows that the integration of culture and technology has great potential in optimizing the economic outcomes that can be obtained from the traditional craft sector.

Liubchanskiy & Yurin find significance of ornithomorph cultural heritage.<sup>(83)</sup> In this study, the researchers underline the importance of conservation of cultural heritage, both material and immaterial. This finding is particularly relevant in the context of digital preservation, as current technological advances allow the process of cultural preservation to be carried out more efficiently and securely, both in digital and physical forms. This suggests that cultural preservation is not limited to physical objects or artifacts, but should also encompass intangible elements, such as the knowledge and traditions contained in the cultural heritage.

Akinruli & Akinruli examine the representation of cultural heritage in museums.<sup>(84)</sup> This study highlights how cultural heritage is not only stored physically, but can also be revived through various modern approaches. Their findings show that the use of information and communication technologies (ICT) has great potential in presenting cultural narratives in a dynamic and interactive way. By implementing ICT, museums can enrich the visitor experience, making cultural heritage more accessible, more engaging, and more relevant to current and future generations. This study provides important inspiration on how digitalization can play a strategic role in strengthening the relationship between people and their culture through innovative platforms.

Salerno developed a participatory model for the interpretation of cultural heritage through audio-visual media.<sup>(85)</sup> This model offers a new approach to bringing people closer to their cultural heritage, not only as passive observers, but also as active participants in the interpretation process. This concept is very relevant to the research objective being studied, namely to build an inclusive and participatory digital communication strategy. By using audio-visual media, Salerno shows how technology can be a bridge to expand community involvement, enrich cultural narratives, and strengthen the sense of ownership and sustainability of cultural heritage in the digital era.

Agius et al. examines the importance of maritime relations in culture.<sup>(86)</sup> This study emphasizes that in building a cultural narrative, it is necessary to consider cross-geographic connections formed through maritime routes. This finding serves as a reminder that the digitalization of culture, including Sumbanese culture, should not only focus on local elements, but also include traces of cultural interactions from outside the region. Thus, the resulting digital content will be richer, deeper, and contextual, showing the dynamics of history and Sumba's connection to the outside world through sea routes.

Butler discusses the revival of cultural heritage through the Alexandria museisation project.<sup>(87)</sup> This study highlights how the process of museization can be a means to reconstruct local cultural heritage by utilizing digital technology. In this context, Butler shows that virtual museums and digitalization strategies are able to expand access to cultural heritage, while strengthening cultural identity in the modern era. These findings are very relevant to understanding how information and communication technology (ICT) can be integrated into the tourism ecosystem, especially in efforts to maintain the existence of local culture. This approach provides insight into how digitally packaged cultural narratives can increase tourist appeal and enrich visitors' experiences of inherited historical and cultural values.

Digitization of cultural narratives is needed to capture the philosophical values, local identities, and symbolism contained in ikat woven products, as well as to increase appreciation and understanding across generations. Then, structured and contextual product metadata can help strengthen brand image and expand the reach of cultural products in the digital tourism ecosystem.<sup>(94)</sup> Strengthening the ICT system has the potential to increase the capacity of the weaving community, expand market access, improve the marketing system, and



support cultural preservation.<sup>(95)</sup> The impact of ICT implementation is not only seen in increasing the existence of ikat woven as a cultural product, but also in increasing the economic welfare of the community and the competitiveness of East Sumba cultural tourism at the national and global levels. The conceptual framework that is prepared needs to consider a participatory, community-based, inclusive approach to local narratives, as well as utilizing audio-visual technology and social media for cultural communication strategies.

This study reveals that the digitalization of cultural narratives has a strategic role in strengthening the ecosystem of cultural heritage-based tourism. Cultural narratives transformed into digital formats enable the dissemination of local cultural values more widely, across geographies, and across generations.<sup>(96)</sup> This has a positive impact on collective awareness of the importance of cultural preservation. Based on a study by Alvarez et al. (2016), the digitalization of cultural narratives plays an important role in expanding the reach of information to a wider audience.<sup>(96)</sup> With the presence of cultural narratives that are packaged digitally, whether in the form of articles, videos, or infographics, cultural tourism destinations can attract more tourists, especially the younger generation who are very connected to digital technology.<sup>(97)</sup> This digitalization not only increases the visibility of cultural destinations, but also strengthens the emotional connection between tourists and the culture represented.<sup>(98)</sup>

Wulandari showed that product metadata, including information about the motifs, materials, and philosophy contained in ikat weaving, has great potential to increase the marketability of these cultural products.<sup>(10)</sup> This metadata not only serves as a documentation tool but also as a means to convey rich and profound cultural stories to a global audience. By using information and communication technology (ICT), woven product metadata can be managed more systematically, so that cultural products such as ikat weaving can be promoted more effectively in the international market.

Untari's research also revealed that well-managed cultural metadata provides long-term benefits, one of which is strengthening the sustainability and preservation of local culture.<sup>(19)</sup> With informative and easily accessible metadata, tourists can better understand the meaning contained in each strand of ikat weaving, making it more than just a tourist attraction but also a valuable educational product. Augmented reality (AR) technology is able to enrich the tourist experience by providing a more realistic and in-depth picture of the culture in a destination.<sup>(61)</sup> In East Sumba, this technology can be used to visualize the history or philosophy contained in ikat weaving motifs. In addition, Panzera also showed that digital content such as documentary videos, infographics, and AR-based applications can be an effective way to communicate cultural narratives interactively and attractively for tourists.<sup>(99)</sup>

In addition, Syamsuddin highlighted the importance of digital literacy among local communities as part of a culture-based ICT development strategy.<sup>(100)</sup> The success of digitizing cultural narratives depends not only on the technology used, but also on the ability of the community to adapt and utilize the technology in promoting their culture. The Tourism Office reported that although East Sumba has extraordinary cultural richness, its tourism sector is still focused on nature tourism which is easier to promote through social media due to the visual and instant nature of nature.<sup>(12)</sup> Cultural tourism, especially those based on local cultural products such as ikat weaving, still faces obstacles in terms of promotion and marketing. Therefore, the digitalization of cultural narratives and management of product metadata are essential to address this gap and strengthen the competitiveness of culture-based destinations.

Brown emphasizes that in the context of the modern tourism industry, competitiveness is determined not only by the physical beauty of a place, but also by the quality and strength of the cultural narrative carried by the destination.<sup>(20)</sup> Digitalization of cultural products and related narratives can provide significant competitive advantages. East Sumbanese ikat weaving, with its historical and philosophical values contained in its motifs, has great potential to compete in the global market if promoted in the right way, using relevant technology. Wulandari & Nusa added that e-commerce and other digital platforms serve as important distribution channels for cultural products.<sup>(10)</sup> With proper digitalization, ikat weaving can be introduced to a wider international audience, as well as increasing the income potential of local communities involved in weaving production.

Based on these findings, this study suggests the importance of developing digital communication strategies that actively involve local communities in the creation and dissemination of cultural narratives. This includes the management of tourism information systems, which will make it easier for tourists to access information about destinations, cultural products, and in-depth cultural narratives.

In addition, the use of digital platforms such as social media, websites, and AR-based applications can increase the appeal of cultural destinations. The Tourism Office noted that the development of culture-based tourism must be supported by adequate digital infrastructure and training for local communities so that they can utilize technology effectively.<sup>(12)</sup> Metadata of woven products, which includes descriptions of motifs, materials, techniques, and cultural contexts, has proven to be an important element in facilitating the interpretation and appreciation of East Sumbanese ikat woven products. Digitization of metadata allows for a deeper understanding of the cultural values contained in the products.<sup>(101)</sup>

Literature studies show that integrating cultural metadata into tourism ICT systems helps create educational

and interactive digital platforms. Technologies such as QR codes, augmented reality, and interactive websites can enrich the tourist experience.<sup>(61)</sup> The impact of digitalization on ICT in the tourism ecosystem shows a significant increase in the efficiency of delivering cultural information. Information systems that support cultural management and promotion become more responsive to the needs of the global tourism market.<sup>(99)</sup> It was found that the digitalization of cultural narratives also has an impact on increasing the competitiveness of cultural-based tourism destinations. Tourism that carries local cultural values has been proven to attract tourists seeking authentic experiences.<sup>(102)</sup>

The study states that the power of digital cultural narratives helps strengthen the destination brand image. This image is formed through the use of professionally produced visual, audio and text content to depict local values.<sup>(20)</sup> Narratives packaged in digital media are able to create emotions and psychological attachments between tourists and local culture. This bond has been proven to extend the duration of stay and increase tourist spending.<sup>(96)</sup> Product metadata also expands the economic value of ikat weaving by making it not only a functional product, but also a narrative product. Consumers who know the story behind the product are more likely to value it economically and symbolically.<sup>(10)</sup>

Literature shows that digitization supports the documentation and preservation of culture in the form of digital archives. These archives become sources of intergenerational learning as well as academic references and cultural promotion. Studies also note the importance of the role of local communities in the digitization process. Community participation in documenting, narrating, and managing cultural narratives increases the legitimacy and accuracy of digital content.<sup>(19)</sup> ICT plays a role as an enabler in connecting cultural actors, creative industry actors, tourism actors, and consumers. This system encourages the creation of a collaborative and participatory ecosystem.<sup>(12)</sup> The literature supports the view that digitization of cultural narratives must be carried out with a culturally sensitive approach. Authentic, undistorted cultural representation and respect for local values are key to the success of this strategy.<sup>(101)</sup>

Case studies in other regions that have been successful in digitalizing culture, such as Japan with the kimono, and India with traditional textiles, show similar patterns in the use of digital narratives to boost the competitiveness of cultural tourism.<sup>(61)</sup> In East Sumba, the digitalization of cultural narratives still faces various challenges, including limited digital infrastructure, digital literacy of local communities, and limited human resources in the field of cultural technology. The involvement of local governments and traditional institutions in the development of cultural digitalization is a key factor in creating an inclusive and sustainable ICT ecosystem.<sup>(102)</sup> The study also found that digital narratives have potential as a tool for cultural diplomacy. Digitalization expands the reach of cultural communication to a wider international audience.<sup>(20)</sup> In the context of tourism, the digitalization of cultural narratives facilitates the personalization of tourism experiences. Digital systems allow tourists to select and explore cultural content according to their interests and needs.<sup>(99)</sup>

Literature research also notes that products equipped with digital metadata are easier to integrate into e-commerce and international markets. This opens up export opportunities and expands the market share of woven products.<sup>(19)</sup> The positive impact on the existence of local culture can be seen from the increasing public awareness of their own cultural values, along with the increasing digital exposure to cultural heritage.<sup>(10)</sup> Digital narratives are becoming an important instrument in cultural education, both in formal (school) and informal (community) environments. Digitalization makes cultural learning more interesting and accessible.<sup>(101)</sup> The literature notes that the involvement of the younger generation in the process of cultural digitalization strengthens the sustainability of cultural heritage. Young people become creative agents in the production and distribution of digital content.<sup>(96)</sup>

The impact of digitalization is also seen in the increase in the volume and quality of tourist visits to cultural destinations. Tourists who are educated through digital media are better prepared to explore culture directly.<sup>(102)</sup> Collaboration between cultural actors, technology developers, and tourism actors is considered very important. This collaboration produces digital cultural products that are not only informative, but also aesthetic and marketable.<sup>(99)</sup> The literature also emphasizes the importance of developing narratives that are adaptive to digital dynamics and tourism trends. Dynamic narratives enable long-term sustainability and cultural relevance.<sup>(61)</sup>

Metadata digitization supports tracking and protection of intellectual property rights of cultural communities. This is important to prevent exploitation and plagiarism of local cultural works.<sup>(19)</sup> Digital narratives can be used as a basis for developing digital tourism applications and cultural maps. These applications help tourists recognize locations, stories, and cultural values in real time.<sup>(99)</sup> Research shows that ICT built through the process of cultural digitalization is organic, contextual, and rooted in local needs and potential. The study concluded that planned and participatory cultural digitalization strengthens cultural identity, opens up new economic access, and places culture at the center of tourism ecosystem development.<sup>(101)</sup> The existence of local culture, especially East Sumba ikat weaving, is getting stronger when the narrative and metadata of its products are brought to the digital space with a creative, inclusive and strategic approach.<sup>(10)</sup>

This study confirms that the digitalization of cultural narratives and metadata of ikat woven products

has a significant influence on the development of ICT in the tourism ecosystem in East Sumba, with positive impacts that include increasing the existence, competitiveness, and sustainability of local culture as a strategic foundation for developing cultural heritage-based tourism. Digitalization allows cultural narratives in ikat weaving to be more easily accessible to local and international tourists, while the integration of information and communication technology (ICT) in communication and promotion strategies strengthens the competitiveness of local cultural products in the global market and maintains the existence of cultural heritage amidst the challenges of globalization and modernization. These findings highlight the importance of collaboration between local communities, government, and other stakeholders to design and implement a comprehensive digital strategy to support the growth of the cultural tourism sector in East Sumba.

### Implications

The implications of the findings of this study indicate that the digitization of cultural narratives and metadata of ikat weaving products can be a strategic tool in developing and promoting culture-based tourism in East Sumba. By integrating Information and Communication Technology (ICT) in the communication and marketing process, East Sumba can increase the existence and competitiveness of cultural tourism destinations, both locally and globally. Digitization allows for wider and deeper dissemination of information about cultural heritage, strengthens local identity, and provides added value to cultural products such as ikat weaving. It also opens up opportunities for local communities to participate in a more inclusive and sustainable tourism ecosystem.

### CONCLUSION

The conclusion of this study is that the digitalization of cultural narratives and metadata of ikat woven products has an important role in strengthening the culture-based tourism ecosystem in East Sumba. Through the integration of Information and Communication Technology (ICT), the process of preserving, promoting, and marketing cultural heritage can be carried out more effectively and efficiently. Digitalization provides an opportunity for local communities to introduce their cultural values more widely, strengthen cultural identity, and increase tourism competitiveness. In addition, the digitalization of narratives and metadata of ikat woven products also opens up opportunities to develop culture-based tourism destinations that are more inclusive, sustainable, and able to compete globally. This study underlines the importance of a digital communication approach in supporting cultural preservation and the development of a tourism ecosystem.

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#### FUNDING

None.

#### CONFLICT OF INTEREST DECLARATION

The author declares that there is no conflict of interest in the conduct of the research and preparation of this article, whether financial, institutional, or personal, that could influence the results and interpretation of the research.

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