



Senior-Friendly Ecotourism: Integrating Local Wisdom and Technology

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ABSTRACT

Elderly-friendly ecotourism is an innovative concept in sustainable tourism development that places the elderly as an important part of inclusive tourism. This study aims to analyze how the integration of local wisdom and technology can create ecotourism destinations that are not only environmentally friendly but also friendly to the physical, psychological, and social needs of elderly tourists. The method used is a literature study of various academic publications, policy reports, and best practices of community-based ecotourism in various regions. The results of the study show that local wisdom plays a fundamental role in building the identity and unique character of tourist destinations through traditional values, culture, and nature conservation practices that have been passed down from generation to generation. Meanwhile, technology acts as a key facilitator in improving accessibility, safety, and comfort for elderly tourists through the application of digital information systems, virtual guides, and smart tourism-based facility designs. The integration of these two elements creates a sustainable, humanistic, and participatory ecotourism model, in which the local community plays an active role in the management and innovation of tourism services (Apriyanti, 2024). With this approach, ecotourism is not only a means of recreation but also a medium for economic empowerment, cultural preservation, and improved social welfare for all age groups

INTRODUCTION

Tourism is one of the strategic sectors that contributes significantly to economic, social, and cultural development in various countries, including Indonesia (Wibowo, 2017; Yakup, 2019; Aponno, 2020). In recent decades, the paradigm of tourism development has shifted from an economic orientation to the concept of sustainable tourism, which emphasizes a balance between environmental, social, and economic aspects. One concrete form of this concept is ecotourism, which promotes nature conservation, respect for local culture, and empowerment of local communities. However, amid this spirit of sustainability, the issue of inclusiveness, especially towards the elderly, is often overlooked. In fact, in the context of global demographics, the proportion of the elderly population continues to increase and is estimated to reach more than 20% of the total world population by 2050. In Indonesia alone, the number of elderly people is increasing significantly every year and requires special attention, including in terms of their right to have a safe, comfortable, and meaningful travel experience.

Ecotourism is essentially designed to provide an in-depth experience of nature and culture, but most ecotourism destinations in Indonesia are still oriented towards physically challenging activities, such as hiking, rafting, or jungle trekking. This makes ecotourism destinations less welcoming to elderly tourists who have physical limitations, special needs, and different comfort levels. Supporting facilities such as gentle slopes, ergonomic rest areas, emergency medical services, and easily accessible information systems are still rarely found. This phenomenon indicates an implementation gap between the concept of sustainable tourism and the reality of inclusivity in the field. Meanwhile, in terms of policy, most ecotourism initiatives in Indonesia still focus on environmental conservation and local economic empowerment, without considering the needs of the elderly tourist segment, whose potential continues to grow.

In addition to inclusivity issues, the development of ecotourism in Indonesia also faces the challenge of integrating local wisdom and technological advances (Sintia, 2025; Rasid, 2025; Riani, 2025). Local wisdom is a socio-cultural asset that contains important values such as harmony with nature, mutual cooperation, and spirituality (Afriansyah, 2025; Aji, 2025). If integrated into tourism activities, these values can strengthen the identity and character of a destination, creating a more authentic and profound travel experience. Advances in digital technology such as the Internet of Things (IoT), augmented reality, digital guidance systems, and smart tourism platforms have brought about major changes in the way tourists interact with destinations (Akhirson, 2025). The main challenge is how to integrate these technological advances without losing local cultural values and without making older adults feel alienated due to their limited digital literacy. This is where the need arises to design a senior-friendly ecotourism model that harmoniously combines technology and local wisdom. From a review of various literature, it was found that most research on sustainable tourism still focuses on issues of conservation, community empowerment, and destination economic efficiency (Mtaputri, 2022).

Meanwhile, research specifically addressing inclusive tourism for the elderly, especially eco-tourism-based tourism, remains very limited. Most studies discussing elderly-friendly tourism focus more on physical infrastructure and medical services rather than the cultural aspects and local values inherent in the tourism experience (Liew, 2021). Similarly, research on technology in tourism mostly revolves around digital tourism, smart tourism systems, and e-destination marketing, without delving deeply into its integration with local wisdom and the specific needs of the elderly. This situation indicates a significant research gap, namely the lack of studies examining the synergy between modern technology, local wisdom, and the needs of elderly tourists in the context of sustainable ecotourism.

LITERATURE REVIEW

From a sociocultural perspective, the elderly are a unique segment of tourists. They are not only looking for entertainment or adventure, but also experiences that provide tranquility, nostalgia, and spiritual connection with nature and local culture. Values such as simplicity, balance, and togetherness found in Indonesian local wisdom are actually very much in line with the psychological and emotional needs of the elderly (Perangin, 2025). Thus, integrating local wisdom into the concept of senior-friendly ecotourism is not merely an aesthetic or cultural strategy, but also a therapeutic and humanistic approach that can enhance the quality of the travel experience. Unfortunately, this great potential has not been optimally utilized by destination managers and researchers in the field of tourism. On the other hand, technological developments provide great opportunities to improve accessibility and comfort for elderly tourists. For example, the use of voice-based applications for tour guides, health sensors connected to medical service centers, automatic navigation systems in tourist areas, and virtual reality tours that can provide a preview of the travel experience before departure. However, the application of this technology is often top-down and does not consider the local context and the adaptability of elderly users. In fact, technology combined with a community-based approach can create systems that are more user-friendly, contextual, and sustainable. This study seeks to address the need for an integrative model that combines local wisdom as the basis for the values and character of a destination with technology as a means of improving access, comfort, and safety for elderly tourists.

Theoretically, this study has novelty in two main aspects. First, conceptual novelty, which proposes an integrative framework that connects three dimensions: local wisdom, adaptive technology, and the needs of elderly tourists in the context of sustainable ecotourism. Second, practical novelty, namely the idea of developing tourist destinations that are not only environmentally friendly and culturally sensitive, but also age-inclusive through the application of simple community-based technology. This model is expected to create a balance between modern technological advances and the preservation of local values that form the nation's identity. Thus, the concept of senior-friendly ecotourism can serve a dual purpose: as a medium of recreation for senior tourists and as a means

of empowerment for local communities. In general, the main objective of this study is to analyze the role of integration between local wisdom and technology in the development of sustainable senior-friendly ecotourism. This study also seeks to provide a conceptual basis for the formulation of policies and strategies for developing inclusive, competitive destinations that are firmly rooted in local cultural values. The results of the study are expected to contribute to the development of literature on sustainable and inclusive tourism, as well as serve as a practical reference for policymakers, tourism stakeholders, and the community in designing ecotourism that is truly friendly to all age groups. With this approach, Indonesia has a great opportunity to become a pioneer in the development of senior-friendly ecotourism based on local wisdom and technology, which will not only strengthen the competitiveness of national tourism but also affirm its commitment to sustainable, humanistic, and inclusive tourism in the digital age.

METHODOLOGY

This study uses a descriptive-analytical literature review approach with the aim of identifying, examining, and synthesizing various previous research results relevant to the themes of senior-friendly ecotourism, local wisdom, and the use of technology in sustainable tourism development. This approach was chosen because the topic being studied is multidisciplinary in nature, covering social, cultural, technological, and environmental aspects. Through a literature review, researchers can understand global and national trends related to the integration of local values and technological innovations in creating inclusive tourist destinations for the elderly, while also identifying research gaps that have not been widely discussed in academic literature. The research data sources were obtained from various academic literature, both primary and secondary, which were collected through systematic searches on scientific databases such as Scopus, ScienceDirect, SpringerLink, Google Scholar, and Garuda (Garba Rujukan Digital Indonesia). The articles used cover publications from 2015 to 2025, providing a comprehensive overview of the latest research developments in the field of sustainable tourism and tourism technology. The selected literature must meet the criteria of relevance to the main topic, have a strong methodological basis, and come from accredited scientific sources. Meanwhile, popular articles, non-academic opinions, and sources without clear methodological references were excluded from the analysis process.

Data collection was carried out through literature searches using keywords such as eco-tourism, senior-friendly tourism, local wisdom, inclusive tourism, and tourism technology. The data were analyzed using a thematic analysis approach, which involved grouping previous research results into several main themes, such as the concept of sustainable ecotourism, the application of technology in inclusive tourism, the values of local wisdom in destination management, and an integrative model between technology and culture in the context of senior-friendly tourism. This analysis was conducted systematically to find patterns of relationships, similarities, and differences between themes relevant to the research objectives. To maintain the validity and

reliability of the study results, the researchers applied source triangulation techniques, namely by comparing and confirming findings from various types of academic literature and policy documents. This approach aims to ensure that the synthesis results are not biased or one-sided, but rather represent diverse and credible scientific views. The entire analysis process was carried out carefully, taking into account the socio-cultural context of Indonesia, given that this study focuses on the application of local wisdom in community-based tourism. In addition, researchers compiled a coding matrix to record and trace important themes from each source, so that the data synthesis process was transparent and scientifically accountable.

The next stage is conceptual analysis, in which the findings from the literature are integrated to construct a conceptual framework that describes the relationship between local wisdom, adaptive technology, and the needs of elderly tourists in the context of sustainable ecotourism. In this stage, researchers combine the theories of inclusive design, community-based tourism, and smart tourism ecosystem to form a new conceptual model that places local communities as the main actors, technology as a tool for improving accessibility, and seniors as the center of tourism experience design. Thus, the resulting conceptual framework not only emphasizes physical development and infrastructure but also pays attention to social, cultural, and emotional aspects that are relevant to senior tourists. The limitation of this study lies in its literature-based nature, which does not involve direct empirical data from the field. Nevertheless, this study still has high academic value because it successfully integrates various scientific perspectives and produces a conceptual synthesis that can be used as a basis for further research with empirical approaches, such as field studies, case studies, or participatory action research. Thus, the literature review method in this study serves not only as a tool for gathering scientific information, but also as a means of building a deep theoretical understanding of how the integration of local wisdom and technology can create sustainable, humanistic, and community-empowering eco-tourism destinations that are friendly to the elderly.

RESULTS AND DISCUSSION

A review of the literature shows that the integration of local wisdom and adaptive technology has strategic potential in shaping a new paradigm for eco-tourism development that is friendly to the elderly (Zhang, 2024; Kesavan, 2025). This integration is not merely a combination of two different elements, but a form of synergy between traditional values rooted in community culture and modern technological innovations oriented towards efficiency and comfort. In the context of inclusive tourism, the collaboration between the two produces an approach that not only emphasizes the recreational aspect but also pays attention to the physical, psychological, and social well-being of elderly tourists (Apriyanti, 2024). Based on the results of an analysis of various studies, it was found that technology acts as a major catalyst in improving accessibility, safety, comfort, and personalization of the travel experience, especially for elderly tourists who

have limited mobility, sensory decline, and specific medical needs (Stafrezar, 2024).

The application of digital technologies such as wearable devices, mobile applications, and Internet of Things (IoT)-based guidance systems enables elderly tourists to travel safely and independently. Through these technologies, health data, travel routes, and audio-visual guides can be accessed in real time, thereby increasing confidence and comfort during travel. The use of virtual tours and augmented reality provides opportunities for seniors to enjoy natural beauty or cultural richness without having to engage in strenuous physical activity (Yu, 2024). The effectiveness of these technologies will be much more optimal if they are implemented with consideration for the local wisdom values that exist within the destination community. Values such as hospitality, mutual cooperation, and respect for nature form the moral foundation that ensures digital transformation in ecotourism remains human- and environment-centered. Thus, technology does not serve as a substitute for social and cultural interaction, but rather as an enhancer that enriches the travel experience and maintains harmony between modernity and tradition.

The application of technology in senior-friendly ecotourism can be categorized into three main functions, namely accessibility technology, information and communication technology, and conservation and environmental safety technology. All three play complementary roles in creating an inclusive, safe, and sustainable tourism ecosystem for the elderly. First, accessibility technology focuses on developing physical and digital infrastructure that enables the elderly to actively participate in tourism activities without significant barriers (Vardhini, 2025). In this context, technology serves not only as an aid but also as a medium of empowerment that restores the confidence and independence of the elderly while traveling. An example of its application can be seen in the use of a smart path system equipped with fall detection sensors, automatic voice guidance, and adaptive lighting that adjusts to natural light intensity. These smart paths not only function as safety facilities but also as interactive tools that provide educational information about the flora, fauna, or local culture along the tourist route. In addition, the development of e-wheelchair navigation integrated with assistive mobility apps allows the elderly to explore destinations without worrying about fatigue or the risk of injury (Zhang, 2024).

The application can map the safest routes, indicate rest stop locations, and provide automatic notifications if health conditions requiring attention are detected. The application of accessibility technology also includes the use of responsive digital architecture design, such as three-dimensional digital maps and real-time route simulation, which help elderly tourists plan their trips while taking into account their physical conditions and personal preferences. On the other hand, voice command and gesture control technologies can be integrated into tourist devices so that seniors do not have to perform complicated interactions with gadgets. Thus, the entire accessibility technology system not only improves comfort and safety, but also reinforces the concept of humanistic

tourism, where technology becomes an instrument of social inclusion that respects the limitations and potential of each senior citizen.

Information and communication technology (ICT) plays a central role in building bridges of interaction between senior tourists, local guides, and destination managers (Sukortprommee, 2025). Through the implementation of integrated digital systems, ICT is not only a means of communication but also a foundation for shaping inclusive, efficient, and adaptive travel experiences for the needs of older users. Various studies show that the use of digital applications with user-friendly, simple, and intuitive interfaces has been proven to increase the satisfaction, sense of security, and active participation of elderly tourists in tourism activities. Ergonomically designed interfaces with large font sizes, high color contrast, minimalist displays, and easy navigation can reduce the visual and cognitive barriers often experienced by the elderly. Information technology plays a role in providing adaptive audio and visual-based digital travel guides, allowing seniors to enjoy travel experiences without complete dependence on physical guides. For example, soft, slow-paced narrative audio guides are very helpful for users with visual impairments. Meanwhile, interactive videos and educational animations about local culture or ecosystems can be an interesting learning tool that is also psychologically calming.

The implementation of an Internet of Things (IoT)-based system provides significant added value in terms of safety and service. Through a network of sensors and wearable health monitors, destination managers can monitor the health conditions of tourists in real time, such as heart rate, blood pressure, or fatigue levels, which are directly connected to local medical service centers. If any anomalies or health risks are detected, the system can send automatic alerts to medical personnel or accompanying family members. ICT not only functions as an information tool, but also as a proactive and responsive safety support system for the needs of the elderly (Tanuwidjaja, 2024). The application of data-based communication technology makes tourist destinations more inclusive and empathetic, as every digital interaction is designed to prioritize the comfort, safety, and independence of users (Apriyanti, 2022). Furthermore, ICT also opens up opportunities for local communities to innovate through the management of digital content based on local wisdom, such as folk tales, traditional rituals, or traditional knowledge, which are packaged in the form of interactive applications. In this way, technology is not only a tool for modernization, but also a means of preserving cultural values that enrich the meaning of the elderly's travel experiences.

Environmental conservation and safety technologies are vital elements in ensuring the sustainability and quality of the tourist experience for all age groups, including the elderly. The basic principle of applying this technology is to create a balance between ecosystem preservation and visitor comfort through an innovative approach based on green technology and smart environment systems (Fatema, 2024). Through the use of environmental sensors, automatic cleanliness detection systems, and renewable energy management such as solar and biomass power, tourist destinations can maintain their ecological carrying capacity without sacrificing visitor comfort or safety. This type of technology

allows tourism managers to monitor various environmental parameters in real time, ranging from temperature, humidity levels, air quality, to noise levels, so that adjustments can be made quickly and accurately. In the context of senior-friendly ecotourism, the application of conservation technology has a dual role: preserving nature while protecting the health of elderly visitors, who tend to be more sensitive to environmental changes. For example, smart climate control systems can automatically regulate natural ventilation and air circulation in tourist areas to maintain optimal temperatures for the comfort of seniors.

Similarly, the use of air quality sensors that can detect pollutants and oxygen levels allows destinations to ensure that the environment remains clean, fresh, and safe for visitors with respiratory disorders. In addition, energy-efficient eco-lighting systems that do not cause eye strain can improve visual comfort for the elderly, especially in areas with low lighting such as footpaths in forests or conservation parks (Sonya, 2024). The integration of smart environment systems and community-based conservation principles also encourages the active participation of local communities in maintaining the sustainability of destinations. For example, through environmental monitoring applications, communities can digitally monitor cleanliness and natural conditions, while also receiving training on waste management and energy efficiency. Thus, conservation technology not only functions technically, but also as a means of education and social empowerment. The synergy between technological innovation, ecological awareness, and local values ultimately creates a safe, comfortable, inclusive, and environmentally friendly tourism experience – an ideal model for the future of sustainable ecotourism in the digital age.

The analysis also shows that the successful implementation of technology in senior-friendly ecotourism is highly dependent on the social and cultural context of the local community (Petrović, 2025). No matter how sophisticated the technology is, it will not have a sustainable positive impact if it is implemented without considering the values, norms, and social structures that have long been part of the community's identity. In many cases, the failure to adopt technology in the tourism sector is often caused by a mismatch between the design of digital systems and the social interaction patterns of the local community (Tian, 2024). Without a locally-based approach, technological innovation can cause social resistance because it is perceived as displacing traditional order, reducing the role of humans, or even eliminating cultural values that have been deeply rooted for generations. The application of technology must be based on the principle of technological contextualization, which is the process of adapting and translating technological innovations to suit the values, customs, and social needs of the local community. This concept emphasizes that technology is not merely a tool for modernization, but also part of a social ecosystem that must respect local cultural characteristics and knowledge systems. For example, in tourist destinations with a strong culture of mutual cooperation, digital service systems can be designed to continue to involve collective community participation. A tourism booking application or digital information system, for example, is not managed centrally by an external party, but by a group of people from the tourism village who act

directly as content and service managers. Thus, technology not only serves to improve operational efficiency, but also as an instrument of social empowerment that strengthens community cohesion. This approach can create a positive symbiosis between innovation and tradition, where digitization becomes a means of preserving local culture. Through digital platforms, communities can document folk tales, traditional rituals, or traditional conservation practices in interactive digital formats that can be accessed by elderly tourists. In addition to enriching the tourist experience, this step also opens up opportunities for culture-based creative economy, such as the sale of local products, online education services, or virtual tours guided directly by the local community. In other words, when technology is implemented contextually and rooted in local wisdom values, it no longer becomes a symbol of modernity that threatens, but rather an inclusive, equitable, and sustainable social transformation tool for the development of senior-friendly ecotourism.

The integration of technology with local wisdom not only strengthens cultural preservation, but also plays a significant role in improving the quality of culture-based tourism experiences for seniors (Zulhuda, 2025; Adiatma, 2025). Modern technologies such as augmented reality (AR) and virtual reality (VR) are now effective tools for bridging the physical limitations of elderly tourists with their need for deep, educational, and emotional experiences. Through this technology, visitors can understand the history, traditions, and spiritual values of a place without having to engage in strenuous physical activity. Seniors, for example, can enjoy interactive virtual tours of historical cultural sites, participate in traditional rituals digitally, or listen to local legends presented in an immersive audio-visual format with soft narration and soothing visuals. The application of AR and VR based on local wisdom provides a great opportunity to deliver an authentic and contextual tourism experience (Nabillah, 2024). Technology no longer functions merely as a means of entertainment, but as a medium for cultural interpretation that helps tourists understand the symbolic meaning behind certain artifacts, buildings, or traditions. For example, through AR, visitors can see digital reconstructions of ancient architecture or traditional ceremonies that are rarely performed in person, while VR allows tourists to experience the atmosphere of rituals or traditional ceremonies as if they were actually there. This not only provides an educational experience, but also builds an emotional and spiritual connection between seniors and the local culture they are visiting. This approach also has important social and psychological value. By providing digital access to cultural heritage, seniors can remain cognitively active, feel valued, and engage in inclusive tourism activities. In addition, collaboration between local technology developers, cultural communities, and traditional tour guides can create an innovative ecosystem that strengthens the culture-based creative economy (Murtiana, 2025; Widodo, 2025; Karmin, 2025). Thus, the integration of AR and VR in the context of senior-friendly ecotourism not only improves comfort and accessibility but also serves as a bridge between tradition and technology, between the past and the present. The result is an ecotourism model that is not only ecologically sustainable but also has high social, cultural, and emotional value for all parties involved.

From a managerial perspective, the application of digital technology opens up a new paradigm in data-driven tourism management that is more responsive, efficient, and oriented towards the needs of elderly tourists. Through the use of big data analytics, managers can collect and analyze various important information, such as visit patterns, activity duration, satisfaction levels, and the most preferred tourist activities among seniors. This data provides a scientific basis for strategic decision-making, enabling managers to formulate policies that are more adaptive to the dynamics of tourist behavior. For example, by monitoring visitor mobility in real time through a digital tracking system, managers can adjust the capacity of tourist areas to remain safe, comfortable, and not cause fatigue for seniors. Machine learning and AI-based recommendation systems provide a new dimension in personalized tourism services (Ngurah, 2024; Altiarika, 2025). This technology can identify the health conditions, activity preferences, and energy levels of individual seniors based on data from wearable devices or integrated health applications. Based on this analysis, the system can recommend the safest tourist routes, ideal visiting times, and light activities that suit the user's condition. This approach not only improves the quality of the tourist experience, but also plays a role in maintaining the safety and physical well-being of visitors. A data-driven management approach also supports the principle of sustainable tourism destinations. By utilizing predictive analytics, managers can estimate visitor spikes, regulate visitor distribution between zones, and prevent overtourism that has the potential to damage the environment. The data obtained can also be used to monitor ecological and social impacts on an ongoing basis, such as environmental cleanliness, energy use, and local communities' perceptions of tourism activities. The success of this system also requires strong data management ethics, especially in protecting the privacy and security of information belonging to the elderly, who are a vulnerable group. The implementation of data governance and digital transparency are crucial aspects in the management of technology-based destinations (Sidik, 2025; Hajar, 2025; Husna, 2025). If applied with participatory and accountable principles, the integration of big data, AI, and smart recommendation systems will not only improve the efficiency of ecotourism management but also build an inclusive, sustainable, and digitally equitable tourism ecosystem for all levels of society, including the elderly.

The main challenge in implementing technology in the ecotourism sector lies in the low level of digital literacy, both among elderly tourists and local communities as destination managers (Amelia, 2025). Limitations in the ability to use digital devices, understand application interfaces, or navigate online-based systems often pose a major obstacle to the adoption of technological innovations. The success of technology implementation is not solely determined by the availability of digital infrastructure, but also by human capacity to operate and utilize it effectively. Therefore, strategies for developing senior-friendly ecotourism must be accompanied by educational approaches and sustainable community empowerment. Basic training programs on the use of tourism applications, digitalization service simulations, and direct assistance from the

younger generation in tourism villages are strategic steps to build intergenerational bridges in technology implementation.

The younger generation, who are more digitally literate, can act as agents of knowledge transformation, helping the elderly understand how to use smart devices, access tourism information, or interact safely and comfortably through online platforms. This approach not only improves the digital skills of the community but also strengthens social cohesion and community solidarity in the digital transformation process. In addition to educational aspects, the successful implementation of technology also depends heavily on inclusive system design. The principle of universal usability must be the basis for every development of digital tourism applications or devices, ensuring that the system is accessible to users with varying levels of ability (Purbo, 2023). This includes features such as interfaces with large text, high color contrast, voice-based navigation, and simple mode options that are easy for seniors to understand. For users with mobility or vision impairments, integration with assistive devices such as screen readers, voice assistants, and gesture controls can increase comfort and independence while traveling. A human-centered design approach needs to be applied so that technology is not only technically efficient but also empathetic to the user experience. By involving local communities and elderly tourists in the design process, technology can truly reflect the needs, values, and habits of users. Thus, digital transformation in ecotourism is not merely modernization, but a process of social and cultural empowerment that ensures every individual, regardless of age or ability, can enjoy the benefits of technology fairly and sustainably.

Overall, the results of the study show that technology cannot be seen as a substitute for local wisdom values, but rather as an empowerment tool that can expand reach, improve accessibility, and enrich culture-based tourism experiences. In the context of senior-friendly ecotourism, technology serves as a bridge between tradition and modernity, not to replace local identity, but to disseminate cultural values through new ways that are more adaptive to the needs of the times. By combining digital innovations such as the Internet of Things (IoT), smart app-based guidance systems, and interactive virtual experiences, traditional values such as local hospitality, mutual cooperation, simplicity of life, and nature conservation can be transformed into a more immersive and inclusive tourism experience for seniors. The synergy between technology and local wisdom creates a humanistic, adaptive, and sustainable senior-friendly ecotourism model. Seniors are no longer placed as passive recipients of tourism services, but as active subjects who are able to enjoy, understand, and even contribute to the preservation of local culture through digital media. For example, through community-based interactive platforms, senior tourists can participate in cultural education activities, take virtual tours, or interact with local guides online. This approach not only improves the quality of the tourist experience, but also strengthens the emotional and social bonds between visitors and the local community. From an economic perspective, this integration opens up great opportunities for the independence of local communities, especially in the context of tourist villages.

Digitalization can help promote local products, expand markets through online platforms, and create new jobs in the fields of tourism technology, digital guiding, and cultural content production. Thus, technology-based ecotourism not only promotes inclusiveness for the elderly but also strengthens community-based creative economies that place the community as the main actor in destination management. The development of technology-based and locally-wise elderly-friendly ecotourism should be made a leading model for Indonesian tourism in the digital era. This model is in line with the vision of sustainable tourism development that balances technological progress with the preservation of cultural and social values. If implemented consistently, Indonesia has the potential to become a pioneer of inclusive and socially just ecotourism, which not only serves the needs of elderly tourists but also inspires the transformation of global tourism towards a more humane and sustainable direction.

CONCLUSIONS AND RECOMMENDATIONS

The results of the study show that the development of senior-friendly ecotourism is a strategic step in realizing inclusive, sustainable, and socially equitable tourism. This concept not only focuses on environmental aspects but also on social and cultural dimensions, especially in meeting the needs of senior tourists. Through the integration of local wisdom and technology, ecotourism can become a vehicle that supports the physical, emotional, and spiritual well-being of the elderly without neglecting cultural values and nature conservation. Local wisdom has proven to be an important foundation in building the identity and character of ecotourism destinations. Traditional values such as mutual cooperation, respect for nature, and the hospitality of the local community play a major role in creating an authentic and meaningful travel experience. However, the sustainability of ecotourism cannot rely solely on tradition; innovation and adaptation through the application of modern technology are needed to address the challenges of accessibility, safety, and service efficiency, especially for elderly tourists.

From a technological perspective, digital advances such as the Internet of Things (IoT), augmented reality (AR), virtual tourism, and wearable health devices have opened up enormous opportunities for the creation of tourist destinations that are more adaptable to the needs of the elderly. Technology plays a role in improving accessibility and comfort, facilitating communication between tourists and managers, and providing responsive safety systems (Apriyanti, 2024). In addition, technology also enables real-time data management through big data analytics, which can be utilized for evidence-based tourism management. The integration of technology and local wisdom not only strengthens the appeal of destinations but also ensures that modernization does not erode the cultural values of the community. The application of technological innovations that are in line with the local socio-cultural context has resulted in a humanistic and participatory ecotourism model, in which the community plays an active role as managers, actors, and primary beneficiaries. Thus, ecotourism is not merely an economic sector, but also a vehicle for community empowerment and the preservation of noble local values.

From a sustainable development perspective, technology-based and locally-wise senior-friendly ecotourism can create a triple impact: environmental conservation, strengthening of the local economy, and improvement in the quality of life for seniors. This approach is also in line with global agendas such as the Sustainable Development Goals (SDGs), particularly Goal 3 (good health and well-being), Goal 8 (decent work and economic growth), and Goal 11 (sustainable cities and communities). This model shows that inclusiveness and sustainability are not two conflicting things, but rather reinforce each other in creating a resilient and competitive tourism ecosystem. Thus, it can be concluded that the future of senior-friendly ecotourism development in Indonesia depends on the ability to harmonize technology and tradition. Technology must be positioned as a tool for empowerment, not domination, while local wisdom becomes the spirit that maintains the balance between progress and sustainability. Human-centered innovation, especially for the elderly, will make Indonesian tourism not only competitive in the global market, but also dignified, inclusive, and deeply rooted in the nation's culture.

FURTHER STUDY

This research still has limitations, so further research is needed on the topic of Senior-Friendly Ecotourism: Integrating Local Wisdom and Technology in order to perfect this research and increase insight for readers.

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