Sustainability

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Aims

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  - Toxic chemicals and hazardous and radioactive wastes
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  - Implementation and monitoring of policies for sustainable development
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  - Ethical and philosophical aspects of sustainable development
- Other topics related to sustainability
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  - Measuring and monitoring sustainability
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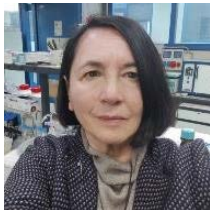
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Sustainability **2025**, *17*(9), 4196; https://doi.org/10.3390/su17094196 - 6 May 2025

[Abstract](#)

Building on our prior research with a national survey sample of 5385 US participants, the Pooled Rideshare Acceptance Model (PRAM) was built upon two factor analyses. This exploratory study extends the PRAM framework using the Pooled Rideshare Acceptance Model Multigroup Analyses (PRAMMA) to **[…] Read more.**
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Article

Moderating Technology Acceptance Model on Resident Empowerment in Support for Sustainable Tourism

Veny Megawati [1,2] , Bambang Widjanarko Otok [3,]* and Jerry Dwi Trijoyo Purnomo [3]

1   Postgraduate Program of Technology Management, Institut Teknologi Sepuluh Nopember, Surabaya 60111, Indonesia; veny_megawati@staff.ubaya.ac.id

2   Department of Management, Faculty Business and Economics, University of Surabaya, Surabaya 60293, Indonesia

3   Department of Statistics, Institut Teknologi Sepuluh Nopember, Surabaya 60111, Indonesia; jerrypurnomo@gmail.com

*   Correspondence: bambang_wo@statistika.its.ac.id

Abstract: This study investigates the impact of resident empowerment on support for sustainable tourism, with technology adoption as a moderating factor. Using the Social Exchange Theory (SET) and Technology Acceptance Model (TAM), it examined how psychological, social, and political empowerment influenced community participation in tourism development. A cross-sectional survey was conducted, involving 328 respondents from tourism villages in East Java, Indonesia. The data was analyzed using Structural Equation Modeling (SEM). The results revealed that psychological empowerment has the strongest effect on support for tourism, followed by social and political empowerment. Technology adoption significantly moderates these relationships, enhancing the positive effects of empowerment on community support. The findings highlight the need for integrating digital transformation with resident empowerment to strengthen tourism sustainability. Policymakers should focus on improving digital literacy, infrastructure, and participatory governance to maximize community involvement.

Keywords: resident empowerment; technology adoption; support for tourism

1. Introduction

The tourism industry has become one of the most significant economic sectors driving regional and global growth [1]. However, the sustainability and success of this sector are not solely determined by the attractiveness of destinations but also by the active involvement of local communities, known as resident support for tourism [2,3]. Resident support for tourism is influenced not only by economic factors but also by non-economic factors, including psychological, social, and political dimensions [4,5]. Findings of previous research suggest that non-economic factors exert a more substantial influence on resident support for tourism than economic factors [4,6]. Resident empowerment creates synergy between tourism stakeholders and the residents, ensuring that the non-economic benefits of tourism are equitably distributed [7]. In this context, resident empowerment provides opportunities for residents to play a strategic role in managing and developing destinations, improving service quality, and preserving local heritage. Through proper empowerment, residents are not only beneficiaries but also key actors in creating competitive advantages for tourism destinations [8].

The perceived benefits and negative consequences determine the impact of resident empowerment on support for tourism they experience. According to Social Exchange

Theory (SET), residents who are actively involved in decision-making and have a sense of control over tourism development are more likely to perceive tourism as advantageous, considering its benefits to outweigh its costs [9,10]. Researchers agree that residents are key stakeholders in a destination, making it essential for their voices to be heard and their participation to be empowered in tourism planning and development [8,11–13]. Active resident involvement not only ensures their support but also enables them to manage the impacts of tourism in their communities effectively. When residents are excluded from decision-making processes related to tourism, securing their approval becomes increasingly challenging [13]. In other words, if they feel disregarded in matters affecting the well-being of their community, they are likely to become indifferent, lose interest, and be reluctant to support tourism development. Several previous studies have indicated that in developing countries, local communities have minimal participation in the decision-making process related to tourism development. They are often overlooked in the planning, decision-making, and management of tourism development projects [14].

Technology plays a crucial role in tourism development, particularly in the context of its adoption by tourism stakeholders. It provides digital platforms, smart infrastructure, and travel applications that enhance service efficiency and enrich the overall tourist experience [15,16]. Research on smart tourism destinations indicates that the implementation of intelligent technologies, such as cloud-based information systems, smart travel applications, and smart city infrastructure, facilitates the provision of more personalized, efficient, and data-driven services for tourism stakeholders [17,18]. The credibility of information sources in travel applications and the adoption of intelligent technologies have been proven to enhance tourist engagement and create a positive destination image [19,20]. Through technological integration, tourism industry players can improve marketing strategies, optimize destination management, and provide more interactive experiences for tourists [21]. Therefore, the adoption of technology in tourism not only benefits tourists but also provides advantages for businesses by enhancing competitiveness and fostering service innovation [17].

Resident empowerment and technology adoption are closely interconnected in the development of sustainable tourism, where technology serves as a tool to enhance community engagement and control in destination management [22]. Resident empowerment, encompassing psychological, social, and political aspects, enables individuals to take a more active role in decision-making and obtain benefits from the tourism sector through access to digital technologies [18]. The adoption of technologies such as digital platforms, cloud-based information systems, and smart travel applications provides residents with opportunities to participate in destination marketing, tourism services, and local resource management more efficiently [20]. Moreover, technology facilitates greater transparency and communication between residents, governments, and tourism industry stakeholders, thereby enhancing participation in decision-making processes [21]. However, the effectiveness of technology adoption in empowering residents depends on factors such as access to digital infrastructure, technological literacy, and policy support from both government and private sectors [17]. Therefore, resident empowerment and technology adoption are mutually reinforcing, as technology strengthens residents' capacity to manage and maximize the benefits of tourism. In contrast, resident empowerment ensures that technology adoption is inclusive and sustainable [19].

Sustainable tourism development in Indonesia is a key priority for the government, aimed at balancing economic growth with environmental conservation and community empowerment. The Government of the Republic of Indonesia has implemented various strategies to transform the country into a world-class tourism destination, including enhancing tourism sites, adopting tourist-oriented marketing strategies, promoting sustainable

environmental initiatives, and strengthening the competitiveness of the tourism industry [23]. With its natural beauty, rich cultural heritage, and ancestral traditions, Indonesia leverages tourism to increase foreign exchange earnings while improving community welfare, mainly through eco-friendly tourism initiatives. The global expansion of tourism significantly impacts local communities, influencing economic, socio-cultural, and environmental aspects [24,25]. Despite the challenges, tourism brings substantial benefits such as job creation, economic prosperity, infrastructure improvements, and increased income, positioning the industry as a catalyst for sustainable economic development with direct advantages for local communities [26]. As part of its commitment to sustainable tourism, the Indonesian government has introduced the Tourism Village program to accelerate tourism recovery and stimulate growth. East Java has been recognized as a province with the highest number of tourism villages for three consecutive years in the Indonesia Tourism Village Award (Anugerah Desa Wisata Indonesia—ADWI). East Java successfully sent six tourism villages to the ADWI Grand Final in 2021, four in 2022, and eight in 2023. The selections included the 50 best tourism villages in 2021 and 2022 and the 75 best in 2023, showcasing Indonesia's commitment to fostering sustainable and community-based tourism.

The tourism industry in Indonesia continues to grow with various resident-based initiatives, such as the ADWI program, which aims to enhance resident welfare through the tourism sector. However, resident involvement in tourism management and decision-making remains limited, particularly in rural areas that face challenges such as low digital literacy, restricted access to technology, and inadequate participation in tourism planning and management processes [23]. Resident empowerment is a key factor in increasing resident support for tourism, as individuals who perceive a sense of control over destination development are more likely to support tourism initiatives in their regions [8,9]. However, structural challenges and accessibility issues continue to hinder the effective implementation of empowerment initiatives, resulting in suboptimal levels of resident support for tourism development.

Previous studies have emphasized that resident empowerment significantly influences resident support for the tourism sector, as explained by Social Exchange Theory (SET), which posits that residents are more likely to support tourism when the perceived benefits outweigh the negative impacts [6,10]. However, a research gap remains in understanding how technology adoption can moderate or even hinder the relationship between resident empowerment and support for tourism, particularly in developing countries [20,27]. Most existing studies focus on developed countries with higher technological readiness, while research on how rural communities can leverage technology to enhance their role in the tourism sector remains limited [28,29]. Therefore, further research is needed to examine how technology adoption can enhance community engagement in destination management, especially in areas with limited digital infrastructure and insufficient policy support.

This study aims to examine the relationship between resident empowerment and support for tourism within the context of community-based tourism, as well as to explore the moderating role of technology adoption in this relationship. By understanding how technology can enhance resident involvement in destination management, this research seeks to provide theoretical insights into the interaction between resident empowerment and technology in the tourism industry [18,21]. Additionally, this study aims to offer practical recommendations for stakeholders in developing inclusive and sustainable digital strategies to improve resident participation and enhance the competitiveness of tourism destinations in Indonesia [17]. The findings of this research are expected to contribute to policy design and community-based tourism management strategies that integrate technology, thereby fostering more sustainable tourism development and empowering local communities.

2. Literature Review

2.1. Resident Empowerment

Resident empowerment in tourism is a critical aspect that shapes the level of resident support for tourism. When residents feel a sense of control over destination management and derive tangible benefits from tourism, they are more likely to actively engage in supporting and contributing to the sector's sustainability [7,8]. This empowerment manifests in various forms, ranging from strengthening social ties among residents and involvement in decision-making processes to fostering a sense of pride in their cultural heritage and local identity. Resident empowerment does not merely perceive tourism as an economic phenomenon; instead, it is viewed as a mechanism that reinforces social cohesion, enhances community solidarity, and instills a collective sense of ownership over their cultural heritage [30,31].

In many destinations, well-managed tourism has the potential to strengthen social relationships within communities, encourage collaboration among residents, and create spaces for more meaningful interactions. When tourism fosters social cohesion, communities are more receptive to its development, recognizing its collective benefits [6]. However, challenges arise when tourism leads to social disparities or unhealthy competition among residents. Therefore, tourism development strategies must carefully consider their impact on social relationships and ensure that benefits are equitably distributed across all community members.

Beyond enhancing social dimensions, empowerment also reflects the extent to which residents feel they have a voice in decision-making processes regarding tourism management in their locality. When residents are given opportunities to participate in tourism policies and perceive their opinions as valued, they tend to be more supportive of the sector's development [32,33]. However, in practice, the impact of political empowerment on tourism support varies. Some studies indicate that while participation in decision-making increases awareness of tourism's benefits and risks, it does not always lead to significantly more excellent support [8]. This inconsistency is often due to challenges in implementing participatory policies or limitations within local governance structures that do not fully accommodate active resident involvement in shaping tourism policies.

Furthermore, psychological empowerment frequently emerges as the strongest determinant of resident support for tourism. When individuals take pride in their cultural identity and heritage and recognize how tourism can reinforce these values, they are more inclined to embrace its development [30,31]. A sense of ownership and emotional engagement in cultural preservation serves as a primary motivator for communities to participate positively in tourism activities. Research has shown that psychological empowerment not only enhances residents' self-confidence but also fosters collective awareness of the importance of preserving their cultural and environmental assets [7]. In this context, introducing educational programs that emphasize cultural values and highlight the role of residents in destination management can be an effective strategy for strengthening community support for tourism.

Hypothesis 1. *Psychological empowerment has a positive effect on support for tourism.*

Hypothesis 2. *Social empowerment has a positive effect on support for tourism.*

Hypothesis 3. *Political empowerment has a positive effect on support for tourism.*

2.2. Technology Adoption

Technology adoption increasingly plays a crucial role in strengthening the relationship between resident empowerment and support for tourism, notably by expanding access for residents to actively participate in tourism management. Social empowerment, which emphasizes the enhancement of social interactions and community solidarity, is further reinforced through technology, enabling residents to utilize social media, digital platforms, and community-based e-commerce as tools to promote their tourism destinations [7]. With technology, local communities can more easily share information, expand collaboration networks, and increase engagement in various community-based tourism activities [4,7]. Recent studies indicate that when technology is integrated into social empowerment processes, support for tourism increases as communities recognize more significant opportunities to be actively involved in destination management [8]. Therefore, technology adoption serves as a moderating factor that amplifies the impact of social empowerment on support for tourism, providing broader access for residents to leverage technology as a tool for collaboration and social engagement.

Political empowerment in tourism, which reflects the extent to which residents feel they have control over decision-making processes, can also be strengthened through technology adoption. E-governance, social media, and digital participatory platforms have enabled residents to contribute to policy discussions, express their aspirations, and participate in tourism-related decision-making [8]. Recent studies reveal that with the availability of technology, residents who previously lacked access to tourism policies can now actively voice their opinions and influence local policies [4]. However, while political empowerment contributes to increasing transparency and public participation, its impact on support for tourism still depends on the effectiveness of the digital systems implemented [7]. The Technology Acceptance Model (TAM) provides a relevant framework for understanding how communities accept and adopt technology for political participation. This model shows that two key factors influence technology acceptance: perceived usefulness (PU) and perceived ease of use (PEOU), which determine the extent to which technology is considered beneficial and easy to use by the community [34]. In other words, the higher the perception of the usefulness and ease of use of technology in supporting political participation, the greater the likelihood that residents will adopt it to support and engage in tourism policies.

Psychological empowerment, which relates to residents' sense of pride and ownership in tourism within their region, is also increasingly strengthened through technology. With the availability of digital platforms and social media, residents have more significant opportunities to digitally promote their culture, share experiences with tourists, and gain broader recognition for their cultural heritage [35]. Technology enables communities to build a strong digital identity in the tourism industry, ultimately increasing their engagement and support for the sector. TAM also explains that the adoption of technology in the context of psychological empowerment will be more effective if the community perceives that the technology used is not only beneficial but also accessible and easy to operate. Therefore, in the context of psychological empowerment, technology serves not only as a promotional tool but also as a means to enhance residents' confidence and pride in supporting tourism. Thus, technology adoption not only expands access and participation but also strengthens the relationship between resident empowerment and support for tourism, making it a key element in fostering sustainable tourism development in the digital era.

Hypothesis 4. *Technology adoption moderates the relationship between social empowerment and support for tourism, such that higher levels of technology adoption strengthen the positive impact of social empowerment on support for tourism.*

Hypothesis 5. *Technology adoption moderates the relationship between political empowerment and support for tourism, such that higher levels of technology adoption strengthen the positive impact of political empowerment on support for tourism.*

Hypothesis 6. *Technology adoption moderates the relationship between psychological empowerment and support for tourism, such that higher levels of technology adoption strengthen the positive impact of psychological empowerment on support for tourism.*

3. Methods

This study adopts an explanatory research design with a cross-sectional approach to examine the relationship between Resident Empowerment, Technology Adoption, and Support for Tourism. The research utilizes the Structural Equation Modeling (SEM) approach to test the hypotheses and analyze the moderating role of technology adoption in strengthening the impact of resident empowerment on support for tourism.

3.1. Data Collection

The population in this study consists of local residents and entrepreneurs actively involved in the development of tourism villages in East Java, Indonesia. The sampling criteria were designed to ensure that respondents had direct experience with tourism activities and community-based tourism initiatives. The inclusion criteria were as follows: (1) local residents aged 18 years or older who permanently reside in tourism villages, ensuring their long-term involvement and familiarity with tourism development in their area; (2) community members who actively participate in tourism-related initiatives, as their engagement in decision-making and tourism promotion reflects their level of empowerment and support for tourism; and (3) local entrepreneurs who own businesses that have operated for at least one year and interact directly with tourists in the tourism village, as they play a crucial role in the tourism economy and are directly affected by its sustainability. Residents not directly involved are excluded because they are likely to have only a general perception of tourism without concrete experience in aspects of empowerment, technology adoption, and support for the sector. The selection of respondents aims to ensure that the collected data is relevant and provides deeper insights into the factors influencing the sustainability of community-based tourism.

These criteria align with the objective of the study, which is to examine the influence of resident empowerment on support for tourism, as well as the moderating role of technology adoption. By selecting respondents directly involved in tourism development, the study ensures that the data collected accurately reflects the perceptions, experiences, and behaviors of the respondents in supporting sustainable tourism. A total of 328 respondents were selected using purposive sampling, ensuring that only individuals with relevant tourism experience and community participation were included. By selecting respondents directly involved in tourism development, the study ensures that the data collected accurately reflects the perceptions, experiences, and behaviors of the respondents in supporting sustainable tourism. A total of 328 respondents were selected using purposive sampling, ensuring that only individuals with relevant tourism experience and community participation were included. The demographic analysis showed that 55% of respondents were female, with the majority (30%) aged 30–40 years, and 54% had completed high school education, which represents the typical educational background of those engaged in tourism-related activities in rural areas. In addition, the respondents presented diverse occupational backgrounds, predominantly entrepreneurs (42%), followed by housewives (28%), private-sector employees (19%), and other occupations (11%). The selected sample provides a comprehensive representation of the key stakeholders in tourism village devel-

opment, allowing for a more in-depth analysis of the factors influencing their support for sustainable tourism initiatives.

3.2. Measurement

Data was collected using a structured questionnaire, which was developed based on validated measurement items from previous literature. The constructs of resident empowerment were adapted from Boley et al. [36]. A five-item Lankford and Howard Tourism Impact Attitude Scale [37] was utilized to measure Support for Tourism. The scale has demonstrated strong validity in a recent study conducted by Boley et al. [36]. The construct of technology adoption was adapted from Bong et al. [38].

To ensure linguistic accuracy and cultural appropriateness, the questionnaire was translated by a professional translator and reviewed, ensuring clarity, relevance, and content validity. The data collection was conducted offline, allowing respondents the necessary flexibility to complete the questionnaire within a designated time frame. The item was measured using a five-point Likert scale ranging from 1 (Strongly Disagree) to 5 (Strongly Agree).

3.3. Data Analysis

The data analysis in this study was conducted using Structural Equation Modeling (SEM) with AMOS (Version 25) software to test the research hypotheses and examine the relationships between constructs. The analysis began with Confirmatory Factor Analysis (CFA) to evaluate the validity and reliability of measurement items, ensuring that the indicators adequately represented their respective latent constructs. Following this, the structural model estimation was performed to assess the direct and moderating effects of technology adoption on the relationship between resident empowerment and support for tourism. To verify the overall model fit, several goodness-of-fit indices were examined, including RMSEA, CFI, TLI, and GFI, to ensure the model's suitability for hypothesis testing. Additionally, the Ping method was employed to assess the moderation effect of technology adoption, determining its role in strengthening the influence of resident empowerment factors on support for tourism. This analytical approach provides a comprehensive and rigorous evaluation, ensuring the reliability of the findings and contributing to a deeper understanding of sustainable tourism development.

4. Results

4.1. Validity and Reliability

Confirmatory Factor Analysis (CFA) was performed to assess the measurement model, and the results indicated a good fit with the observed data (χ^2 = 710.514, degrees of freedom (df) = 243, $p < 0.001$; χ^2/df = 2.923). The model fit indices met the recommended thresholds, with Incremental Fit Index (IFI) = 0.907, Tucker–Lewis Index (TLI) = 0.92, Comparative Fit Index (CFI) = 0.91, and Root Mean Square Error of Approximation (RMSEA) = 0.07, confirming the model's adequacy [39]. The internal consistency reliability of all constructs was verified, as Cronbach's alpha values exceeded 0.70, indicating acceptable reliability [39]. In addition, convergent validity was established, with factor loadings exceeding 0.50, demonstrating that all measurement items significantly loaded onto their respective constructs [39]. Furthermore, the Average Variance Extracted (AVE) values were above 0.50, confirming that each construct explained more than half of the variance in its indicators. The results, summarized in Table 1, confirm that all constructs met the required thresholds for validity and reliability, ensuring the robustness of the measurement model.

Table 1. Constructs and measurement items.

Indicator	Factor Loading	Cronbach's Alpha	AVE
Psychological Empowerment		0.934	0.740
I take great pride in being a resident of my village.	0.890		
I take pride in knowing that visitors visited to admire the distinctive characteristics of my village.	0.887		
It makes me want to tell others about what we offer in my village.	0.906		
Reminds me of the value of sharing my distinct cultural heritage with visitors.	0.809		
Motivates me to strive to maintain the distinctiveness of my village.	0.804		
Social Empowerment		0.870	0.692
Engaging in this activity enhances my sense of connectedness to the local community.	0.887		
Fosters a sense of 'community spirit' within me.	0.871		
Offers various opportunities for community involvement.	0.730		
Political Empowerment		0.928	0.765
I am actively engaged in influencing and contributing to decisions for the development of tourism in my village.	0.873		
I am responsible for the decision-making process regarding tourism development in my village.	0.949		
My opinions can significantly influence the progress and growth of the local community.	0.885		
I have established a forum to express my concern regarding the impact of tourism development on my village.	0.785		
Technology Adoption		0.910	0.773
I use different types of digital technology for marketing purposes.	0.768		
I benefit from using different types of digital technologies in my daily activities.	0.962		
The use of various types of digital technologies, overall, eases me.	0.898		
Support for Tourism		0.927	0.719
In my village, the advantages of tourism generally outweigh the drawbacks.	0.853		
I believe tourism in my village should be actively encouraged.	0.822		
I have always supported and wanted to see tourism in my village as necessary.	0.821		
My village should be retained as a tourist destination.	0.878		
My village needs to support and promote tourism actively.	0.865		

4.2. Hypotheses Results

The structural equation modeling analysis used the maximum likelihood estimation method. The results indicate that the model fits the data well (χ^2 = 979.005,

chi-square = 1052.90, p = 0.000, RMSEA = 0.062, GFI = 0.948, AGFI = 0.890, CMIN/DF = 1.620, TLI = 0.937, CFI = 0.962). Table 2 illustrates the results of the hypotheses testing.

Table 2. Structural Model Assessment and Hypotheses Testing.

	Hypothesis	Coefficient	Critical Ratio	p-Value	Result
H1	Psychological empowerment → Support for Tourism	0.522	4.374	0.000	Supported
H2	Social Empowerment → Support for Tourism	0.417	5.982	0.000	Supported
H3	Political Empowerment → Support for Tourism	0.016	4.613	0.000	Supported
H4	Psychological empowerment * Technology Adoption → Support for tourism	0.011	2.469	0.006	Supported
H5	Social empowerment * Technology Adoption → Support for tourism	0.015	4.824	0.000	Supported
H6	Political empowerment * Technology Adoption → Support for tourism	0.17	3.102	0.002	Supported

The results presented in Table 2 indicate that various forms of empowerment significantly influence support for tourism. Psychological Empowerment (H1) exhibits the strongest positive effect on Support for Tourism (coefficient = 0.522, critical ratio = 4.374, p-value = 0.000), followed by Social Empowerment (H2) with a coefficient of 0.417 and a critical ratio of 5.982 (p-value = 0.000). Although Political Empowerment (H3) shows a lower coefficient (0.016), its effect remains statistically significant (critical ratio = 4.613, p-value = 0.000), indicating that all three dimensions of empowerment contribute to fostering tourism support.

Furthermore, the moderating role of Technology Adoption is evident in all three empowerment dimensions. The interaction between Psychological Empowerment and Technology Adoption (H4) has a small yet significant effect (coefficient = 0.011, critical ratio = 2.469, p-value = 0.006). Similarly, Social Empowerment moderated by Technology Adoption (H5) exhibits a significant influence (coefficient = 0.015, critical ratio = 4.824, p-value = 0.000). The strongest moderating effect is observed in Political Empowerment (H6), where Technology Adoption enhances its impact on tourism support (coefficient = 0.17, critical ratio = 3.102, p-value = 0.002). These findings highlight the crucial role of empowerment in shaping community support for tourism and emphasize the importance of integrating technological advancements to strengthen this relationship.

5. Discussion

5.1. Resident Empowerment and Resident Support for Tourism

The findings of this study indicate that resident empowerment has a significant influence on support for tourism. More specifically, the study reveals that all three dimensions of empowerment—psychological empowerment, social empowerment, and political empowerment—positively and significantly impact residents' support for tourism development. These findings align with the research conducted by Ahn and Bessiere [33], which also demonstrated that these three dimensions contribute to increasing community support for tourism initiatives. Furthermore, the statistical analysis reveals that psychological empowerment exerts the strongest influence on support for tourism compared to social empowerment and political empowerment. This finding suggests that residents take great pride in their local tourism destinations, which in turn enhances their willingness to support and actively participate in tourism development within their communities. These

results are also consistent with the study conducted by Strzelecka et al. [6], which similarly found that psychological empowerment has a greater impact than social empowerment and political empowerment in fostering residents' support for tourism.

Psychological empowerment plays a crucial role in fostering residents' support by enhancing their sense of pride, ownership, and shared responsibility for tourism development within their local area [3]. A sense of pride and ownership arises from various factors, one of which is the increasing number of visitors to village tourism destinations, which subsequently enhances the village's reputation. The respondents in this study are residents of villages that have won the Anugerah Desa Wisata (ADWI) competition, organized by the Ministry of Tourism and Creative Economy. This improved reputation contributes to the enhancement of psychological empowerment, as residents feel more valued and recognize their crucial role in the development of tourism in their region. Studies conducted by Kim et al. [40] and Khalid et al. [41] also explain that as a tourism destination gains greater recognition, residents' satisfaction and sense of pride in the destination increase. Communities that experience direct benefits from tourism tend to feel a sense of pride as the sector contributes to improved well-being, job creation, and overall economic enhancement [42]. Consequently, psychological empowerment emerges as the key factor in strengthening support for tourism, compared to social and political empowerment, whose effects tend to be more indirect and reliant on external factors.

The findings of this study also indicate that psychological empowerment exerts the strongest influence on support for tourism compared to social empowerment and political empowerment. This is because psychological empowerment provides individuals with a sense of ownership, control, and direct benefits within the tourism sector. Individuals who feel psychologically empowered are more likely to develop an emotional attachment to a tourist destination and perceive that they can actively contribute to its development, thus enhancing their support for tourism [43]. Furthermore, psychological empowerment directly affects support for tourism, as individuals who believe they have a role in decision-making are more inclined to endorse tourism policies and projects [44]. Studies also suggest that psychological empowerment boosts resident pride and personal satisfaction with the tourism sector, thereby reinforcing a positive attitude toward destination development [41]. Consequently, psychological empowerment emerges as the key factor in strengthening support for tourism, compared to social and political empowerment, whose effects tend to be more indirect and reliant on external factors.

Social empowerment and political empowerment tend to exert a weaker influence on resident support for tourism compared to psychological empowerment, largely because their impacts are more indirect and dependent on external factors. Social empowerment emphasizes social relationships and community engagement; nevertheless, without a sense of personal control and direct benefits from tourism, residents may remain skeptical or reluctant to endorse local tourism fully [41]. Meanwhile, political empowerment often encounters limitations related to public participation in decision-making processes and the level of trust in political institutions; communities that feel powerless or distrust government policies are generally less inclined to support tourism development [33]. In contrast, psychological empowerment provides individuals with a sense of control over the effects of tourism on their lives, thereby fostering stronger support for the tourism sector [43]. Therefore, although social empowerment and political empowerment do play roles in promoting tourism, psychological empowerment remains the most effective factor in enhancing public support for the tourism sector.

5.2. The Role of Technology Adoption in Improving the Relationship Between Resident Empowerment and Support for Tourism

The results of this study show that technology adoption moderates the relationship between resident empowerment (psychological, social, and political empowerment) and support for tourism by providing communities with broader access to information, communication tools, and participatory platforms. When the level of technology adoption is high, residents can actively engage in decision-making processes related to tourism development, thereby enhancing their sense of ownership and understanding of the economic and social benefits offered by the industry [35]. Additionally, technology facilitates the dissemination of innovations and best practices from various destinations, further strengthening residents' ability to influence policy directions and bolstering their support for tourism initiatives. Conversely, when technology adoption is low, the community may lack sufficient access for meaningful participation, thereby weakening the empowerment effect and reducing their level of support for the tourism sector [6].

In terms of political empowerment, technology enhances community access to decision-making processes related to tourism policies. E-governance, social media, and digital participatory platforms enable residents to access policy information, voice their concerns, and participate in discussions regarding tourism destination development [8]. Technology also offers opportunities for communities to actively express their opinions to policymakers, thereby reinforcing their sense of ownership over the tourism industry [4]. Nonetheless, the effectiveness of technology adoption as a moderator depends on the readiness of communities to accept and utilize technology optimally. If access to and proficiency in technology remain limited, the positive impact of political empowerment on support for tourism may not be fully realized. Therefore, through digital education strategies and improvements in technological infrastructure, the role of technology as a moderating factor in the relationship between empowerment and support for tourism can be optimized to promote the sustainability of the tourism sector in the digital era.

The findings of this study underscore the crucial role of psychological empowerment in shaping resident support for tourism, suggesting that a deep sense of pride, cultural identity, and emotional attachment is the most powerful driver of community participation. Moreover, the study reveals that while all dimensions of empowerment are important, their effects can be significantly amplified through the adoption of digital technologies, especially in the case of political empowerment, where technology facilitates greater transparency, communication, and participation.

These insights offer both theoretical and practical contributions. Theoretically, they validate the synergy between Social Exchange Theory and the Technology Acceptance Model in explaining how digital transformation can enhance community-based tourism. Practically, the results highlight the urgency for policy interventions that go beyond generic empowerment and focus on strategic enablers—namely, cultural pride and digital inclusion.

Consequently, tourism development programs must prioritize initiatives that nurture psychological empowerment through cultural recognition and heritage-based storytelling, while simultaneously expanding access to technology that supports residents' active involvement in tourism governance. This dual strategy—emotional empowerment and digital enablement—can create a more resilient and inclusive tourism ecosystem in rural areas.

6. Recommendation

6.1. Policy Recommendation

The findings of this study offer several important policy implications for enhancing resident empowerment and support for sustainable tourism. Given that psychological empowerment has the strongest influence on resident support, governments, and tourism

stakeholders, we should prioritize initiatives that foster a deep sense of pride, ownership, and cultural identity among residents. This can be achieved through the development of heritage-based tourism programs, digital platforms for storytelling, and the promotion of local culture, particularly in award-winning tourism villages such as those recognized through the ADWI program. These efforts not only strengthen emotional engagement but also position residents as key actors in shaping the identity of their destinations.

Equally important is the role of technology adoption, which moderates and strengthens the relationship between empowerment and support for tourism, especially in the domain of political empowerment. To capitalize on this, policymakers should invest in expanding access to digital infrastructure in rural tourism villages and offer digital literacy training tailored to residents' needs. These programs should not only focus on technical skills but also build community confidence in utilizing digital tools for tourism promotion, participation in governance, and small business development.

Furthermore, local governments should implement participatory digital governance platforms that allow residents to contribute directly to tourism planning and decision-making. Mobile applications, e-governance portals, and digital forums can bridge the communication gap between residents and policymakers, ensuring that community voices are included in the development process. By aligning empowerment strategies with technological readiness, policymakers can foster inclusive and sustainable tourism systems that reflect the aspirations and strengths of the local community. Ultimately, such integrative policies will enhance community engagement, improve destination competitiveness, and ensure long-term support for tourism development.

6.2. Research Limitations

While this study provides valuable insights into the role of resident empowerment and technology adoption in supporting sustainable tourism, several limitations should be acknowledged. First, a recommendation for future research is to incorporate the variable of tourist destination reputation to gain a deeper understanding of the factors influencing resident empowerment, particularly in the context of psychological empowerment, which often plays a key role in encouraging active community participation in tourism development. The tourist destination reputation variable is proposed because the respondents in this study are village residents whose tourism destinations already have a high level of popularity and professional management, as reflected in the ADWI awards. Second, the research was conducted within a specific geographical context, focusing on tourism villages in East Java, Indonesia. This may limit the generalizability of the findings to other regions with different socio-cultural, economic, and technological conditions. Future research should expand the scope to include tourism destinations across various provinces or countries to assess the broader applicability of the model. Third, while this study highlights the moderating role of technology adoption, it does not fully explore the barriers to technology access and digital literacy among residents. Factors such as affordability, infrastructure limitations, and government policies could significantly impact technology adoption and, consequently, its moderating effect. Future studies should investigate these barriers in detail to provide more actionable recommendations for policymakers. Lastly, the research primarily relies on self-reported survey data, which may be subject to social desirability bias. Although efforts were made to ensure respondent anonymity and mitigate biases, future studies could benefit from incorporating qualitative methods such as interviews or focus groups to gain a more nuanced understanding of residents' perceptions and experiences. Despite these limitations, this study contributes to the literature on sustainable tourism development by emphasizing the interplay between resident empowerment and technology adoption.

Addressing these limitations in future research can enhance the robustness of findings and further inform policies to strengthen community-based tourism initiatives.

7. Conclusions

This study highlights that psychological empowerment has the most substantial impact on resident support for sustainable tourism, followed by social and political empowerment. More importantly, technology adoption plays a crucial moderating role, amplifying these empowerment effects—especially political empowerment—by enabling broader community access to information, participation, and decision-making. The research offers two key contributions. First, it underscores the central role of psychological empowerment, especially in communities with a strong tourism identity. Second, it emphasizes the strategic value of digital transformation in enhancing empowerment outcomes. These findings suggest that empowerment strategies should not be generic but must prioritize psychological and political dimensions, supported by tailored digital interventions. From a policy perspective, governments and tourism stakeholders should design empowerment frameworks that are digitally inclusive, culturally grounded, and participatory. Future studies are encouraged to expand this model across different geographic and technological contexts, and to examine deeper the challenges of digital inclusion and community capacity-building for long-term tourism sustainability.

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