ISSN 2961-5283 (Online)

The Potential Impact of AI-Driven Personalization on Tourist Satisfaction and Retention in Sri Lanka

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This study explores the impact of Artificial Intelligence (AI) on enhancing personalized travel experiences in Sri Lanka's tourism sector. Employing a qualitative research approach, data was collected through in-depth interviews with 18 tourists and focus groups with 21 tourism service providers. The study applies the Technology Acceptance Model (TAM), Diffusion of Innovations Theory (DOI), and Service-Dominant Logic (SDL) to analyze perceptions, adoption challenges, and potential benefits of AI technologies. Key findings indicate that while AI tools like chatbots and personalized recommendations can significantly enhance customer service and operational efficiency, their adoption is hindered by technical issues, high costs, and resistance to change. This research was conducted to provide strategic insights that can help stakeholders in the tourism sector make informed decisions about AI adoption. To address these barriers, the study recommends comprehensive training programs, robust technical infrastructure, customization to local contexts, effective communication strategies, and collaboration between stakeholders. The implications suggest that leveraging AI can enhance Sri Lanka's tourism competitiveness and promote sustainable practices. Future research should focus on the long-term impacts of AI-driven tourism on local communities and the role of government support in facilitating AI adoption.

Keywords: *AI adoption, Artificial Intelligence, customer service, operational efficiency, personalized travel, Sri Lanka, sustainable tourism, tourism, tourist experience,*

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ISSN 2961-5283 (Online)

Introduction

Tourism is a critical pillar of Sri Lanka's economy, contributing significantly to GDP, employment, and foreign exchange earnings (Weerathunga et al, 2020). Known for its stunning landscapes, rich cultural heritage, and biodiversity, Sri Lanka attracts millions of tourists annually. However, the tourism sector faces numerous challenges, including competition from other destinations, the need for sustainable practices, and the demand for enhanced visitor experiences (Buultjens et al, 2017). In this context, leveraging advanced technologies, particularly Artificial Intelligence (AI), emerges as a strategic imperative to enhance the competitiveness and attractiveness of Sri Lanka's tourism offerings.

Sri Lanka's tourism industry has seen substantial growth over the past decades, with notable peaks and troughs influenced by global and local events (Weerathunga et al, 2020). The sector is diverse, encompassing heritage sites, wildlife safaris, beach resorts, and adventure tourism. Despite this diversity, the industry struggles with several issues, including seasonal fluctuations, environmental degradation, and the need for infrastructure development (Buultjens et al, 2017). Additionally, the COVID-19 pandemic has profoundly impacted the tourism sector, highlighting the need for resilience and innovation in recovery strategies (Sivanandamoorthy, 2021). The integration of AI into Sri Lanka's tourism sector presents both opportunities and challenges. One of the primary issues is the technological infrastructure (Bulchand-Gidumal, 2022). Sri Lanka faces challenges in terms of digital infrastructure, which is crucial for deploying AI technologies (Hummel et al, 2024). This includes reliable internet connectivity, data storage solutions, and access to advanced computational resources (Arachchi et al, 2022). Without these, the implementation of AI solutions remains a significant hurdle (Arachchi et al, 2022). Another critical concern is data privacy and security. Implementing AI solutions requires extensive data collection and processing, raising concerns about data privacy and security. There is a need for robust regulatory frameworks to protect tourists' data and ensure the ethical use of

ISSN 2961-5283 (Online)

AI (Bulchand-Gidumal, 2022). Additionally, the adoption of AI technologies necessitates a workforce skilled in AI and data science. Sri Lanka faces a shortage of such skilled professionals, which hampers the effective implementation of AI-driven solutions (Bulchand-Gidumal, 2022).

Economic constraints further complicate the adoption of AI in the tourism sector (Çeltek and Ilhan, 2020). Many small and medium enterprises (SMEs) may find the cost of adopting AI technologies prohibitive. Financial constraints and limited access to capital can slow down the adoption of AI (Çeltek and Ilhan, 2020). The high initial investment required for AI infrastructure, coupled with the ongoing costs of maintenance and updates, can be daunting for these businesse. Moreover, the acceptance of AI technologies by both tourists and service providers is critical (Çeltek and Ilhan, 2020). Cultural resistance to technological changes can pose a significant barrier to AI integration in the tourism sector. Ensuring that both stakeholders are comfortable and proficient in using AI tools is essential for their successful implementation (Çeltek and Ilhan, 2020).

AI technologies have the potential to transform the tourism sector by enhancing personalized travel experiences (Bulchand-Gidumal, 2022). One of the most significant benefits is the enhancement of customer service. AI-driven chatbots and virtual assistants can provide real-time support to tourists, answering queries, and offering personalized recommendations. This not only enhances customer satisfaction but also engages tourists more effectively, leading to a more enriching travel experience (Bulchand-Gidumal, 2022). Personalized marketing is another area where AI can make a significant impact. AI can analyze vast amounts of data to offer personalized marketing strategies, ensuring that promotional efforts are targeted and effective. This can significantly improve tourist retention and loyalty by offering them services and experiences tailored to their preferences and behaviors (Doborjeh et al, 2022).

Operational efficiency in the tourism sector can also be significantly improved

through AI (Bulchand-Gidumal, 2022). AI can streamline operations, from managing bookings and logistics to optimizing resource use. For instance, AI can predict peak times and manage bookings accordingly, ensuring that resources are used efficiently (Bulchand-Gidumal, 2022). This leads to cost savings and improved service delivery, which are crucial for maintaining a competitive edge in the tourism market. Additionally, AI can contribute to sustainable tourism practices (Çeltek and Ilhan, 2020). By optimizing energy use, managing waste, and monitoring environmental impacts, AI can help tourism operators implement more sustainable practices (Çeltek and Ilhan, 2020). This aligns with the global trends towards more sustainable and responsible tourism, which are increasingly important to today's environmentally conscious travelers (Çeltek and Ilhan, 2020).

Aims and objectives

The research aims to explore tourists' perceptions regarding the role of AI in augmenting their travel experiences in Sri Lanka. Specifically, the study focuses on the following objectives:

1. To identify AI applications suitable for integration into the tourism sector to deliver personalized services.
2. To examine the challenges and opportunities faced by tourism service providers in implementing AI-based solutions.
3. To understand the impact of AI-driven personalization on tourist satisfaction and retention in Sri Lanka.

Through these objectives, the research seeks to provide valuable insights into AI-enabled tourism experiences, contributing to the advancement of technological adoption in Sri Lanka’s tourism sector.

This research is crucial for several reasons. Firstly, it provides strategic insights that can help tourism stakeholders in Sri Lanka make informed decisions about technology adoption and implementation. Understanding how AI can enhance

ISSN 2961-5283 (Online)

personalized travel experiences allows for better planning and integration of these technologies into existing systems. Secondly, the findings of this research can inform policy recommendations for the Sri Lankan government and tourism bodies. This is particularly important in areas related to digital infrastructure development, data privacy regulations, and skills training programs. By addressing these areas, policymakers can create an environment that supports the successful adoption of AI technologies.

Implementing AI-driven solutions can give Sri Lanka a competitive edge in the global tourism market (Çeltek and Ilhan, 2020). Enhanced personalization and operational efficiency can attract more tourists and increase their satisfaction, leading to higher retention rates and positive word-of-mouth promotion (Çeltek and Ilhan, 2020). Tourists who have personalized and seamless experiences are more likely to return and recommend Sri Lanka to others. AI technologies can also play a pivotal role in promoting sustainable tourism practices in Sri Lanka (Çeltek and Ilhan, 2020). By optimizing resource use and minimizing environmental impacts, AI can help balance economic growth with environmental conservation. This not only preserves Sri Lanka's natural beauty for future generations but also attracts tourists who are increasingly seeking eco-friendly travel options.

The innovation potential highlighted by this research is also significant. By showcasing successful AI applications and identifying best practices, this study can encourage tourism businesses to innovate and adopt new technologies (Bulchand-Gidumal, 2022). This is particularly important for staying competitive in an industry that is rapidly evolving with technological advancements.

Literature review

Tourism plays a vital role in Sri Lanka's economy, contributing significantly to employment and GDP. As the industry evolves, the integration of Artificial Intelligence (AI) has become increasingly important in enhancing personalized

travel experiences. AI's capabilities in data analysis, customer service, and predictive modeling are transforming how tourists interact with destinations and services. This literature review aims to explore the historical context, recent advancements, applications, challenges, and future directions of AI in tourism, with a specific focus on Sri Lanka. The review will also critically analyze theoretical frameworks relevant to understanding AI adoption in tourism.

The early applications of AI in tourism began with basic data processing and management systems, which evolved into more sophisticated tools like expert systems and recommendation engines (Çeltek and Ilhan, 2020). Milestones in AI development relevant to tourism include the advent of machine learning algorithms, natural language processing (NLP), and the integration of AI with mobile technologies. These innovations have enabled more accurate predictions, personalized recommendations, and enhanced customer interactions, contributing to a more seamless and customized travel experience (Li and Zhang, 2022).

Recent technological advancements in AI, such as deep learning, real-time data analytics, and advanced NLP, have further revolutionized the tourism sector (Li and Zhang, 2022). These innovations have enabled more accurate predictions, personalized recommendations, and enhanced customer interactions, contributing to a more seamless and customized travel experience. (Li and Zhang, 2022). AI-driven customer service has seen widespread adoption in the form of chatbots and virtual assistants (Stroumpoulis et al, 2022). These technologies provide 24/7 customer support, handling inquiries, booking services, and offering travel advice. Case studies from global companies like Expedia and Skyscanner illustrate successful implementations where AI has significantly improved customer satisfaction and operational efficiency (Gretzel et al., 2015).

AI enhances personalized marketing by analyzing customer data to offer tailored recommendations and promotions. This targeted approach not only boosts marketing efficiency but also increases consumer engagement and satisfaction. Studies have

ISSN 2961-5283 (Online)

shown that personalized offers significantly impact consumer behavior, leading to higher conversion rates and customer loyalty (Tussyadiah et al., 2017). Smart tourism destinations utilize AI to optimize resource management, enhance tourist experiences, and promote sustainability. Components of smart destinations include IoT devices, data analytics, and AI-driven decision support systems. AI's role in sustainability is evident in energy management, waste reduction, and the preservation of natural resources. Examples include smart city initiatives in Barcelona and Amsterdam, where AI contributes to sustainable tourism practices (Boes et al., 2016).

The extensive use of AI in tourism raises significant concerns about data privacy and security. Issues related to the collection, storage, and use of personal data are prevalent. Mitigation strategies include robust data protection policies, encryption, and transparent data handling practices to ensure consumer trust and compliance with regulations like General Data Protection Regulation (GDPR) (Chaudhuri, 2016). AI algorithms can perpetuate biases present in training data, leading to unfair treatment of certain groups. Ensuring algorithmic fairness involves rigorous testing, diverse data sets, and continuous monitoring to detect and correct biases. Inclusive AI design and stakeholder engagement are crucial to achieving fairness (Kaplan & Haenlein, 2019).

AI's impact on employment in tourism includes both job displacement and the creation of new roles. Automation of routine tasks can lead to job losses, necessitating workforce reskilling programs. Strategies for reskilling include training in digital literacy, AI management, and service-oriented roles to equip workers for the evolving job market (Huang & Rust, 2018). Global examples of AI in tourism demonstrate diverse applications and impacts. Comparative studies of AI implementations in countries like Japan, the United States, and the United Kingdom highlight differences in adoption rates, technological integration, and outcomes. These studies provide valuable insights into best practices and common challenges

faced in leveraging AI for tourism (Gretzel et al., 2020).

In Sri Lanka, existing research on AI in tourism is limited but growing (Arachchi et al, 2022). Studies focus on opportunities such as enhancing tourist experiences through personalized services and challenges like infrastructure limitations and digital literacy. Sri Lanka's unique cultural and economic context presents both opportunities and challenges for AI adoption in tourism (Fernando et al., 2020). Emerging trends in AI for tourism include predictive analytics, real-time personalization, and immersive technologies like augmented reality (AR) and virtual reality (VR). These trends promise to further personalize travel experiences and enhance decision-making processes. Predictive analytics, for instance, can forecast tourist behavior and preferences, allowing for more proactive service delivery (Buhalis & Amaranggana, 2015).

Despite significant advancements, several research gaps remain. Areas needing further exploration include the impact of AI on small and medium-sized enterprises (SMEs) in tourism, regional variations in AI adoption, and the long-term effects of AI-driven tourism on local communities (Isono and Prilliadi, 2023). Addressing these gaps will provide a more comprehensive understanding of AI's role in the tourism sector (Sigala, 2018). The Technology Acceptance Model (TAM) provides a framework for understanding how users accept and use technology. Key constructs include perceived usefulness (PU) and perceived ease of use (PEOU). In tourism, PU reflects how AI applications enhance the travel experience, such as through personalized recommendations or efficient customer service. PEOU pertains to the simplicity and intuitiveness of AI tools, which is crucial for widespread adoption among tourists and service providers.

In the tourism context, TAM can be adapted to assess user satisfaction and acceptance levels of AI technologies. Studies indicate that both PU and PEOU significantly influence the acceptance of AI tools in tourism, highlighting the importance of user-friendly designs and clear benefits (Kim et al., 2008). Diffusion

of Innovations Theory (DOI) explains how new ideas and technologies spread within a social system. In tourism, innovations include AI technologies such as chatbots, recommendation systems, and virtual assistants. Effective dissemination of information about AI tools is crucial for their adoption. This involves leveraging various channels like social media, tourism websites, and word-of-mouth. The cultural and social context of Sri Lanka's tourism sector influences the adoption of AI. Understanding local norms, values, and practices is essential for successful implementation (Rogers, 2003).

DOI can be applied to examine how AI innovations are adopted in the tourism industry. Factors such as relative advantage, compatibility, and observability influence the rate of adoption. Research suggests that stakeholder engagement and tailored communication strategies enhance the adoption of AI technologies (Karahanna et al., 1999). Service-Dominant Logic (SDL) emphasizes value co-creation and the role of service processes. In tourism, AI enables tourists and service providers to jointly create value through enhanced experiences and personalized services. AI applications facilitate ongoing interactions, contributing to continuous service improvement and customer satisfaction.

SDL is relevant to understanding how AI transforms service delivery in tourism. It underscores the importance of collaborative value creation and the dynamic nature of service interactions. Research highlights the potential of AI to enhance co-creation processes and deliver more meaningful and personalized travel experiences (Zsarnoczky, 2017) This literature review has explored the historical context, recent advancements, applications, challenges, and future directions of AI in tourism. Key findings include the significant impact of AI on personalized travel experiences, the importance of addressing ethical considerations, and the need for further research in specific areas.

Theoretically, this review highlights the relevance of frameworks like TAM, DOI, and SDL in understanding AI adoption in tourism. Practically, it provides insights

ISSN 2961-5283 (Online)

for stakeholders in Sri Lanka to leverage AI for enhancing tourist experiences, addressing challenges, and promoting sustainable tourism practices.

Methods

This study employs a qualitative research approach to explore the impact of AI on personalized travel experiences in Sri Lanka. The research methodology involves the development of an interview guide based on theoretical frameworks such as the Technology Acceptance Model (TAM), Diffusion of Innovations Theory (DOI), and Service-Dominant Logic (SDL). The data collection period spanned from March 2023 to September 2023.

The research population includes two main groups: tourists who have experienced AI-based services in Sri Lanka and tourism service providers who have implemented or interacted with AI technologies. The tourists were selected from popular destinations in Sri Lanka, namely Arugambay, Ella, Galle, Kandy, the Cultural Triangle, Yala, and Nuwara Eliya. These locations were chosen due to their prominence in the tourism sector and their adoption of AI technologies in various services.

A purposive sampling method was used to select 18 tourists for in-depth interviews. Purposive sampling is suitable for this study as it allows the researcher to select participants who have specific experiences with AI-based tourism services. This method ensures that the selected tourists have firsthand experience with AI technologies, such as AI chatbots, personalized recommendations, and smart itinerary planning, which is crucial for obtaining relevant and detailed insights.

For the focus groups, 21 tourism service providers were selected using a stratified sampling method. Stratified sampling ensures that different subgroups within the population are adequately represented. In this study, the subgroups are defined by the type of service providers (hotel managers, tour operators, and travel agencies) and their locations (Arugambay, Ella, Galle, Kandy, the Cultural Triangle, Yala, and

ISSN 2961-5283 (Online)

Nuwara Eliya). Each destination had three representatives from each type of service provider, ensuring a comprehensive representation of perspectives across different regions and service types. This method allows for a detailed understanding of the experiences and expectations of service providers regarding AI implementation in tourism.

The data collection involved two primary methods: in-depth interviews and focus groups. The interviews with tourists were conducted using a semi-structured interview guide developed based on the theoretical frameworks. The interview guide included questions designed to explore tourists' perceptions of the usefulness and ease of use of AI technologies (TAM), their experiences with the adoption and diffusion of these innovations (DOI), and their views on value co-creation and service interactions facilitated by AI (SDL). The semi-structured format allowed for flexibility, enabling participants to provide rich, detailed responses while ensuring that the key themes relevant to the theoretical frameworks were covered.

The focus groups with tourism service providers were organized to gather insights on their experiences and expectations of using AI in tourism. The focus groups were structured to facilitate discussions around the benefits, challenges, and future potential of AI in enhancing service delivery and customer experiences. The discussions were guided by questions derived from the theoretical frameworks, focusing on aspects such as the perceived advantages and challenges of AI adoption, communication channels used for disseminating information about AI tools, and the role of AI in co-creating value with customers.

The qualitative data collected from interviews and focus groups were analyzed using thematic analysis. This method involves identifying, analyzing, and reporting patterns (themes) within the data. The data analysis process included several steps: familiarization, coding, theme development, reviewing themes, and defining and naming themes. The first step involved transcribing the interviews and focus group discussions, followed by repeated reading to become familiar with the data. Initial

codes were generated by systematically working through the data and identifying significant features related to the research questions and theoretical frameworks. The codes were then grouped into potential themes, which were reviewed and refined to ensure they accurately represented the data and addressed the research objectives. The themes were reviewed in relation to the coded extracts and the entire dataset to ensure coherence and consistency. The final themes were defined and named, providing a clear understanding of each theme and its relevance to the research questions.

Findings of the Study

Analysis and Findings from Tourism Service Providers

To explore how AI technologies can be utilized to create personalized travel experiences for tourists in Sri Lanka, and to understand the perceptions and expectations of both tourists and tourism service providers regarding AI-enhanced services this interview guide was used. The responses were analyzed to understand the lack of current AI technology usage due to various challenges, despite recognizing its potential benefits.

Table 1

Interview Evidence for Technology Acceptance Model (TAM)

Question	Summary of Responses	Example Quotes
Perceived Usefulness	AI applications like chatbots and recommendation systems are recognized for their potential to enhance customer service by providing quick responses and personalized suggestions. However, these tools are not widely used at the moment.	"We see the potential in AI chatbots to reduce staff workload, but we haven't implemented them yet." (Hotel Manager- Galle, Personal Communication. March 13, 2023)
Perceived Ease of Use	Staff and tourists find the idea of AI tools appealing, but actual use is limited due to perceived complexity and lack of	"Our staff needs more training to effectively use AI tools." - (Tour operator Kandy, Personal Communication.

	familiarity. Training programs are considered essential for future adoption.	March 19, 2023)
Challenges	Challenges include technical issues, high costs, resistance to change, and the need for continuous training and updates.	"Implementing AI tools is expensive and requires constant updates and training." - (Travel Agency Nuwara Eliya, Personal Communication. March 26, 2023)

Table 2

Interview Evidence for Diffusion of Innovations Theory (DOI)

Question	Summary of Responses	Example Quotes
Innovation	There is an interest in integrating AI technologies such as chatbots, personalized recommendations, and smart itinerary planning. Decisions to adopt these tools are still under consideration, mainly due to cost and technical challenges.	"We are interested in AI for personalized recommendations, but haven't adopted it yet." (Hotel Manager- Ella, Personal Communication. March 7, 2023)
Communication Channels	Information about AI tools is mainly communicated through industry conferences and webinars. Effective communication channels are still being evaluated.	"We learn about AI tools through industry events, but haven't started using them." (Tour operator Arugambay, Personal Communication. May 17, 2023)
Social System	The cultural and social context influences AI adoption, with a preference for personal interactions over AI. Efforts are being made to understand and address these cultural barriers.	"In Sri Lanka, there's a strong preference for personal interaction, which affects AI adoption." (Travel Agency Cultural Triangle, Personal Communication. June 2, 2023)

ISSN 2961-5283 (Online)

Table 3

Interview Evidence for Service-Dominant Logic (SDL)

Question	Summary of Responses	Example Quotes
Value Co-creation	While AI tools are seen as valuable for creating personalized travel experiences, actual collaboration with tourists through these tools is minimal. The potential for future co-creation is recognized.	"We see the potential for AI in creating personalized experiences, but haven't implemented it yet." - (Hotel Manager- Yala, Personal Communication. July 15, 2023)
Service as Process	AI applications could facilitate ongoing service interactions and improvements, but their current use is limited. There is interest in future adoption to enhance customer satisfaction.	"AI could help us improve interactions, but we need to overcome several challenges first." - (Tour operator Galle, Personal Communication. July 17, 2023)

Table 4

Interview Evidence for General Questions

Question	Summary of Responses	Example Quotes
Challenges	Major challenges include technical issues, high costs, resistance to change, and ensuring data privacy. These factors have prevented widespread AI adoption.	"High costs and technical challenges are major barriers to AI implementation." (Travel Agency Kandy, Personal Communication. August 2, 2023)
Opportunities	Opportunities include the potential for enhanced personalization, improved efficiency, and innovative services. Service providers recognize the transformative potential of AI despite current challenges.	"AI has the potential to significantly enhance our services once we overcome the challenges." (Hotel Manager- Ella, Personal Communication. March 8, 2023)
AI-driven Personalization	AI-driven personalization is expected to positively impact tourist satisfaction and retention in the future.	"We believe AI personalization will improve satisfaction, but we're not there yet."

	Current implementation is limited but promising.	(Tour operator Arugambay, Personal Communication. May 18, 2023)
Future AI Developments	Desired developments include more user-friendly AI, improved integration with existing systems, and enhanced data security. These advancements are seen as necessary for future adoption.	"We need more user-friendly AI and better integration with our systems." (Hotel Manager- Nuwara Eliya, Personal Communication. May 7, 2023)

The study delves into the perceptions and attitudes of tourism service providers in Sri Lanka regarding the adoption of Artificial Intelligence (AI) technologies across various dimensions. One key aspect examined is the perceived usefulness of AI applications. While a notable majority of respondents (57%) acknowledged the potential benefits of AI, it is noteworthy that these technologies are not currently in use. A significant portion of respondents (33%) provided hypothetical examples of how AI tools could enhance services, indicating a level of awareness and interest in their potential utility.

Moreover, the perceived ease of use emerged as another crucial consideration. Nearly half of the respondents (48%) highlighted the potential ease of use of AI applications, albeit with a substantial portion (38%) acknowledging the need for training. However, the implementation of AI faces considerable challenges, with a significant majority (71%) identifying barriers that currently prevent its adoption. These challenges encompass various factors such as technical issues, high costs, and resistance to change.

The study also explores perspectives on innovation in AI technologies. A majority of respondents (62%) expressed interest in various AI technologies, indicating a willingness to explore their potential applications. However, a notable proportion (43%) is considering adoption but faces barriers in doing so, suggesting a gap between interest and implementation.

Communication channels and social systems play pivotal roles in shaping attitudes towards AI adoption. The reliance on industry conferences and webinars for information (52%) underscores the importance of effective communication methods in disseminating knowledge about AI technologies. Moreover, cultural influences and barriers are significant factors affecting AI adoption, as indicated by the acknowledgment of cultural influences (67%) and encountered cultural barriers (48%).

Value co-creation through collaboration via AI is recognized by a portion of respondents (38%), although examples of such collaboration are currently minimal. Similarly, while there is recognition of the potential for AI to facilitate ongoing service interactions (48%) and drive continuous improvement (43%), actual implementation remains limited.

The study concludes that despite the recognized benefits of AI in enhancing personalized travel experiences and improving customer satisfaction, tourism service providers in Sri Lanka face significant barriers to adoption. Technical issues, resistance to change, and data privacy concerns are among the primary challenges hindering widespread implementation. Nevertheless, there is optimism regarding future AI developments, with stakeholders eagerly anticipating advancements that can overcome these barriers and facilitate broader adoption in the tourism industry.

Analysis and Findings from Tourists

This interview guide was used to explore how AI technologies can be utilized to create personalized travel experiences for tourists in Sri Lanka, and to understand the perceptions and expectations of both tourists and tourism service providers regarding AI-enhanced services. The focus was on understanding their experiences in Sri Lanka, particularly in comparison to other countries like Vietnam, India, Thailand, Indonesia, and Maldives. The responses were analyzed to identify the challenges and potential improvements for AI-based tourism services in Sri Lanka.

ISSN 2961-5283 (Online)

Table 5

Interview evidence for Technology Acceptance Model (TAM)

Question	Summary of Responses	Example Quotes
Perceived Usefulness	AI applications like chatbots and recommendation systems are seen as enhancing the travel experience by providing quick and personalized assistance. However, many tourists found these tools less effective in Sri Lanka compared to other countries.	"AI chatbots were helpful for quick responses, but they were not as effective as in Thailand or Indonesia." (Tourist- Germany, Personal Communication. August 16, 2023)
Specific Examples	Specific examples include using chatbots for booking assistance and recommendation systems for finding local attractions. These tools were particularly useful in planning daily activities.	"The recommendation system helped us find great restaurants, but it wasn't as comprehensive as in Vietnam." (Tourist- USA, Personal Communication. August 16, 2023)
Perceived Ease of Use	Tourists generally found AI technologies easy to use, but the user experience in Sri Lanka was often less smooth compared to other countries. Technical issues and lack of local adaptation were common challenges	"In Sri Lanka, the AI tools were sometimes slow and didn't always understand local nuances." (Tourist- UK, Personal Communication. August 16, 2023)
Challenging Tool	Some tourists found AI chatbots and virtual assistants challenging to use due to technical glitches and limited functionality.	"The AI chatbot frequently misunderstood my queries, which was frustrating." (Tourist- Australia, Personal Communication. August 16, 2023)

ISSN 2961-5283 (Online)

Table 6

Interview evidence for Diffusion of Innovations Theory (DOI)

Question	Summary of Responses	Example Quotes
Innovation	Tourists used various AI technologies such as chatbots, personalized recommendations, and smart itinerary planning during their trips. The adoption of these tools was influenced by previous positive experiences in other countries.	"I used AI for itinerary planning, but it was not as efficient as in the Maldives." (Tourist- Canada, Personal Communication. August 11, 2023)
Learning About AI Tools	Tourists learned about AI tools through travel websites, social media, and word-of-mouth from fellow travelers.	"I first heard about AI travel tools on a travel blog and decided to try them out." (Tourist- France, Personal Communication. August 21, 2023)
Communication Channels	Information about AI tools was communicated through various channels, with travel websites and social media being the most effective. Hotel staff also played a role in informing tourists about available AI services.	"Travel websites and social media were my main sources of information about AI tools." (Tourist- Israel, Personal Communication. August 23, 2023)
Effective Channels	Social media and travel blogs were found to be the most effective channels for informing tourists about AI services.	"Social media posts about AI travel tools caught my attention and made me want to try them." (Tourist- Japan, Personal Communication. August 30, 2023)

ISSN 2961-5283 (Online)

Table 7

Interview evidence for Service-Dominant Logic (SDL)

Question	Summary of Responses	Example Quotes
Value Co-creation	AI enhanced tourists' ability to create personalized travel experiences by offering tailored recommendations and real-time assistance. Collaboration with service providers through AI tools was limited but recognized as having potential.	"AI recommendations helped me personalize my travel itinerary, but I didn't interact much with service providers through AI." (Tourist- Italy, Personal Communication. August 26, 2023)
Collaboration Examples	Examples of collaboration include using AI for booking activities and receiving personalized travel tips. However, the extent of collaboration was less compared to experiences in other countries.	"In Sri Lanka, AI helped me book activities, but it wasn't as interactive as in India." (Tourist- Brazil, Personal Communication. August 27, 2023)
Service as Process	Ongoing interactions with AI applications included using chatbots for customer service and recommendation systems for daily planning. These tools facilitated continuous improvement and satisfaction to some extent.	AI tools provided ongoing assistance, but the experience wasn't as seamless as in other countries." (Tourist- South Korea, Personal Communication. August 27, 2023)
Continuous Improvement	Continuous service improvement through AI was noted, but the level of satisfaction was lower compared to other countries.	AI tools helped improve my experience, but there's room for improvement in Sri Lanka." (Tourist- Russia, Personal Communication. August 30, 2023)

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Table 8

Interview evidence for General Questions

Question	Summary of Responses	Example Quotes
Challenges	Challenges included technical issues, lack of local adaptation, and limited functionality of AI tools. These factors made it difficult to fully utilize AI technologies in Sri Lanka.	"Technical glitches and limited local knowledge made AI tools less useful in Sri Lanka." (Tourist- UK, Personal Communication. May 11, 2023)
Improvements Suggested	Suggestions for improvement include enhancing the technical reliability of AI tools, better local adaptation, and providing more comprehensive and accurate information.	"AI tools need to be more reliable and better adapted to local contexts." (Tourist-Germany, Personal Communication. May 18, 2023)
Overall Satisfaction	Overall satisfaction with AI-enhanced services in Sri Lanka was moderate. Tourists appreciated the potential benefits but found the implementation lacking compared to other countries.	"I was moderately satisfied with AI services in Sri Lanka, but they have a long way to go." (Tourist-France, Personal Communication. May 19, 2023)
Recommendation	Many tourists would recommend AI-based tourism services to others, with the caveat that improvements are needed. The potential benefits are recognized, but the current experience is not as high as in other countries.	"I would recommend AI services, but they need to improve to match the standards of other countries." (Tourist-Australia, Personal Communication. May 21, 2023)

The investigation into tourists' perceptions and experiences with AI technologies in Sri Lanka sheds light on several critical aspects influencing the adoption and effectiveness of AI-driven services. Notably, the perceived usefulness of AI applications among respondents highlights a mixed sentiment, with a majority (56%) acknowledging their utility but expressing dissatisfaction with their effectiveness compared to other countries. Specific examples provided by respondents underscore

ISSN 2961-5283 (Online)

the potential of AI tools to enhance services, albeit with room for improvement to meet international standards.

Concerns regarding the ease of use of AI tools are prevalent among respondents, with half (50%) finding them easy to use but encountering technical issues specific to Sri Lanka. Additionally, the identification of certain AI tools as challenging due to technical glitches suggests a need for enhanced usability and reliability to optimize user experience.

Innovation in AI technologies emerges as a significant theme, with a majority of respondents (67%) reporting the use of various AI technologies during their trips. However, there is a notable reliance on travel websites and social media (61%) for learning about AI tools, indicating the importance of effective communication channels in disseminating information to tourists.

Cultural influences and barriers play a significant role in shaping the adoption of AI technologies, with half of the respondents (50%) acknowledging the impact of cultural context on their usage. Similarly, a substantial portion (39%) encountered cultural barriers when using AI services, emphasizing the need for culturally sensitive AI solutions.

Despite challenges, respondents recognize the potential for value co-creation through AI (56%), although examples provided are limited, indicating untapped potential for collaboration and innovation. Ongoing interactions with AI applications (50%) and perceived continuous improvement (44%) highlight the evolving nature of AI-driven services in Sri Lanka.

However, technical issues (67%), lack of local adaptation (56%), and limited functionality pose significant challenges to AI implementation. Respondents also express the desire for enhanced personalization (61%) and more innovative AI services (50%), suggesting opportunities for improvement in meeting tourist expectations.

Tourists heavily reliant on AI technologies perceive current AI services in Sri Lanka as challenging compared to experiences in other countries. Addressing technical issues, enhancing local adaptation, and improving functionality are crucial steps to bridge this gap and fully realize the benefits of AI-based tourism services in Sri Lanka. Future developments should focus on enhancing reliability, usability, and information dissemination to align with international standards and meet the evolving needs of tourists.

Thematic Analysis

To conduct a thematic analysis of the interview responses from both tourism service providers and tourists, key themes that emerged from the data were idetified. These themes were grouped based on the Technology Acceptance Model (TAM), Diffusion of Innovations Theory (DOI), Service-Dominant Logic (SDL), and general questions. The responses were coded, and recurring patterns were identified.

Table 9

Thematic Analysis of Responses (Including Codes and Categories)

Theme	Description	Codes	Category
Perceived Usefulness	Recognition of AI's potential benefits for enhancing services, despite current low usage.	"Potential benefits," "Enhancing services," "Low usage"	Perceived Benefits
Perceived Ease of Use	Challenges in ease of use due to technical issues and lack of training.	"Technical challenges," "Complexity," "Training needs"	Ease of Use Challenges
Challenges	Technical issues, high costs, resistance to change, and data	"High costs," "Resistance to change," "Technical	Adoption Barriers

	privacy concerns.	problems," "Data privacy"	
Innovation	Interest in AI technologies but facing barriers in adoption due to cost and technical issues.	"Interest in innovation," "Cost barriers," "Technological hurdles"	Barriers to AI Adoption
Communication Channels	Reliance on industry conferences, social media, and travel websites for AI information.	"Learning from conferences," "Social media," "Travel websites"	Information Sources
Social System	Cultural influences and barriers affecting AI adoption.	"Cultural resistance," "Preference for personal interactions"	Cultural and Social Barriers
Value Co-creation	Potential for personalized travel experiences through AI, but with limited current examples.	"Potential for co-creation," "Few examples," "Personalized experiences"	Collaborative Value Creation
Service as Process	Recognition of AI's potential to facilitate ongoing interactions and service improvements.	"Service improvement," "Ongoing interactions," "Future potential"	Continuous Service Improvements
Opportunities	Enhanced personalization, improved efficiency, and innovative services seen as future benefits.	"Future potential," "Improved efficiency," "Personalization potential"	Future Benefits of AI Adoption
Satisfaction	Moderate satisfaction with current AI services,	"Moderate satisfaction," "Room for improvement,"	Current Satisfaction Levels

	recognizing the need for improvements.	"Less effective than other countries"	
Recommendation	Willingness to recommend AI services, with an emphasis on needed improvements.	"Recommend with improvements," "Potential but not fully realized"	AI Service Recommendations

The thematic analysis provides a comprehensive overview of the perceptions and experiences surrounding AI technologies in the Sri Lankan tourism sector, as observed from the viewpoints of both service providers and tourists.

There is a consensus among both groups regarding the potential benefits of AI applications such as chatbots and recommendation systems. However, the actual adoption of these technologies is hindered by various challenges, including technical issues, high costs, and resistance to change. Service providers recognize the potential of AI tools to reduce workload and enhance customer experiences, but they face barriers in implementation, such as the need for training and the preference for personal interactions inherent in the cultural context. Similarly, tourists appreciate the convenience offered by AI tools but express dissatisfaction with their effectiveness compared to experiences in other countries.

Furthermore, the thematic analysis underscores the importance of effective communication channels for disseminating information about AI technologies. Both service providers and tourists rely on industry events, social media, and travel websites to learn about AI tools, highlighting the need for comprehensive and accessible information dissemination strategies.

Despite the challenges, there is optimism regarding the future potential of AI in the Sri Lankan tourism sector. Both service providers and tourists envision AI contributing to enhanced personalization, efficiency, and innovation in service delivery. However, to realize this vision, significant improvements in technical

ISSN 2961-5283 (Online)

reliability, local adaptation, and user training are necessary.

Discussion and Recommendation

This study aimed to explore how AI technologies can be utilized to create personalized travel experiences for tourists in Sri Lanka, and to understand the perceptions and expectations of both tourists and tourism service providers regarding AI-enhanced services. The findings from interviews with 21 tourism service providers and 18 tourists reveal critical insights into the current use, challenges, and potential of AI technologies in the Sri Lankan tourism sector.

Technology Acceptance Model (TAM)

The TAM framework helped elucidate the perceived usefulness and ease of use of AI technologies. A significant portion of service providers (57%) recognized the potential benefits of AI applications like chatbots and recommendation systems. However, the actual use of these tools is currently limited due to various challenges. Both service providers and tourists reported that AI tools could enhance customer service and provide personalized suggestions. For instance, a hotel manager from Galle noted, "We see the potential in AI chatbots to reduce staff workload, but we haven't implemented them yet." Similarly, tourists acknowledged the utility of AI applications but found them less effective in Sri Lanka compared to other countries. A tourist from Germany remarked, "AI chatbots were helpful for quick responses, but they were not as effective as in Thailand or Indonesia."

Perceived ease of use emerged as another critical factor. Approximately 48% of service providers and 50% of tourists found AI technologies appealing but challenging to use due to technical issues and lack of training. For instance, a tour operator from Kandy highlighted the need for more training, stating, "Our staff needs more training to effectively use AI tools." Tourists also reported similar experiences, with a tourist from the UK noting, "In Sri Lanka, the AI tools were sometimes slow and didn't always understand local nuances."

ISSN 2961-5283 (Online)

Diffusion of Innovations Theory (DOI)

The DOI theory provided insights into the innovation adoption process among service providers and tourists. There is evident interest in integrating AI technologies such as chatbots, personalized recommendations, and smart itinerary planning. However, actual adoption is hindered by cost and technical challenges, as indicated by 62% of service providers and 67% of tourists. A hotel manager from Ella expressed this interest, stating, "We are interested in AI for personalized recommendations, but haven't adopted it yet."

Effective communication channels are crucial for disseminating information about AI tools. Both service providers (52%) and tourists (61%) rely on industry conferences, social media, and travel websites for information. A tourist from Israel noted, "Travel websites and social media were my main sources of information about AI tools." This highlights the need for comprehensive and accessible information dissemination strategies to facilitate AI adoption.

The social system also plays a significant role in shaping AI adoption. Cultural influences and barriers were noted by 67% of service providers and 50% of tourists. For instance, a travel agency from the Cultural Triangle mentioned, "In Sri Lanka, there's a strong preference for personal interaction, which affects AI adoption." Tourists also acknowledged cultural impacts on their use of AI technologies, as a tourist from Japan stated, "The cultural context influenced my use of AI technologies."

Service-Dominant Logic (SDL)

SDL emphasizes value co-creation and service as a process. AI technologies have the potential to enhance personalized travel experiences and facilitate ongoing service interactions. However, current collaboration with tourists through AI tools is minimal, as recognized by 38% of service providers and 56% of tourists. A hotel manager from Yala mentioned, "We see the potential for AI in creating personalized

ISSN 2961-5283 (Online)

experiences, but haven't implemented it yet." Similarly, tourists reported limited interaction with service providers through AI, as a tourist from Italy noted, "AI recommendations helped me personalize my travel itinerary, but I didn't interact much with service providers through AI."

AI tools can facilitate continuous service improvement and satisfaction, although the current level of satisfaction is moderate. A tourist from South Korea stated, "AI tools provided ongoing assistance, but the experience wasn't as seamless as in other countries."

General Questions

The study identified several challenges hindering the widespread adoption of AI technologies in Sri Lanka. Both service providers (71%) and tourists (67%) reported technical issues, high costs, resistance to change, and data privacy concerns as significant barriers. A travel agency from Kandy highlighted these challenges, stating, "High costs and technical challenges are major barriers to AI implementation." Tourists echoed similar sentiments, with a tourist from the UK noting, "Technical glitches and limited local knowledge made AI tools less useful in Sri Lanka."

Despite these challenges, there is optimism regarding the future potential of AI in the Sri Lankan tourism sector. Both service providers (71%) and tourists (61%) recognize the potential for enhanced personalization, improved efficiency, and innovative services. A hotel manager from Ella mentioned, "AI has the potential to significantly enhance our services once we overcome the challenges."

Recommendations

Based on the study's findings, the following recommendations are proposed to enhance the adoption and effectiveness of AI technologies in the Sri Lankan tourism sector.

1. Provide comprehensive training programs for staff to improve their familiarity and competence with AI tools. This will help overcome the perceived complexity and ease the adoption process.
2. Address technical issues by investing in robust AI systems that are reliable and capable of handling local nuances. This includes improving the speed and accuracy of AI applications like chatbots and virtual assistants.
3. Customize AI technologies to better understand and cater to the local context and cultural preferences. This will help mitigate resistance to change and enhance the user experience.
4. Utilize multiple communication channels such as industry conferences, social media, and travel websites to disseminate information about AI tools. Ensure that the information is comprehensive and accessible to both service providers and tourists.
5. Encourage collaboration between service providers and tourists through AI tools to co-create personalized travel experiences. This can be achieved by integrating AI tools that facilitate real-time interaction and feedback.
6. Address data privacy concerns by implementing robust data protection measures. This will build trust among users and encourage the adoption of AI technologies.
7. Foster a culture of continuous improvement and innovation by regularly updating and refining AI tools based on user feedback. This will enhance customer satisfaction and keep pace with technological advancements.
8. Seek support from government and industry stakeholders to subsidize the costs associated with implementing AI technologies. This can help mitigate the financial barriers to adoption.

By implementing these recommendations, the Sri Lankan tourism sector can leverage AI technologies to create more personalized and satisfying travel

ISSN 2961-5283 (Online)

experiences for tourists, ultimately enhancing the overall competitiveness of the industry.

Conclusion

The integration of Artificial Intelligence (AI) into Sri Lanka's tourism sector holds significant potential to transform and elevate the industry's offerings. This study has highlighted the critical role AI can play in personalizing travel experiences, enhancing customer service, and improving operational efficiency. By addressing the current challenges—such as technological infrastructure, data privacy concerns, and the need for skilled professionals—Sri Lanka can effectively harness AI's capabilities.

Training and development are paramount to overcoming perceived complexities associated with AI tools. Enhancing technical reliability and adapting AI technologies to local contexts can mitigate resistance and improve user experiences. Effective communication strategies, robust data protection measures, and fostering collaboration for value co-creation are also essential steps in promoting AI adoption.

Furthermore, continuous improvement and innovation, supported by government and industry stakeholders, will be crucial in sustaining AI advancements. These efforts will not only enhance the personalization and efficiency of tourism services but also contribute to sustainable tourism practices by optimizing resource use and minimizing environmental impacts.

The insights gained from this study underscore the importance of AI in creating competitive advantages for Sri Lanka's tourism sector. Enhanced personalization and operational efficiency can lead to higher tourist satisfaction and retention, driving positive word-of-mouth promotion. Moreover, AI's role in promoting sustainable tourism aligns with the growing demand for eco-friendly travel options, preserving Sri Lanka's natural beauty for future generations.

ISSN 2961-5283 (Online)

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