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AI-BASED GUIDEBOOKS: CONCEPTS, KEY FEATURES, AND CHALLENGES

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ABSTRACT

The digital transformation of tourism and information services has accelerated the adoption of artificial intelligence in travel-related applications. An outcome of this process is the emergence of AI-based guidebooks, which differ from traditional guidebooks in their ability to personalize content, adapt to changing conditions, and interact with users in real time. This study aims to examine the core features, technological foundations, and challenges of AI-based guidebooks and their implications for contemporary tourism. The object of the research is AI-based guidebooks as intelligent guidance systems. It is focused on their functional characteristics, including personalization, context awareness, and interactive capabilities. The methodology is based on a conceptual and analytical review of academic literature on intelligent recommendation systems, natural language processing, geospatial analytics, and multimodal information delivery. The analysis identifies key advantages of AI-based guidebooks, such as adaptive content generation, context-sensitive recommendations, conversational interaction, and multimodal engagement. At the same time, important limitations are highlighted, including issues of information reliability, privacy and ethical concerns, and the risk of over-reliance on automated systems. The study concludes that AI-based guidebooks mark an important advancement in tourism information systems and stresses the need for more research on transparency, user trust, and hybrid methods that blend AI personalization with human-edited cultural content.

KEYWORDS

AI-Based Guidebooks, Artificial Intelligence, Personalization, Tourism Technologies, AI Systems

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Introduction

Guidebooks have traditionally played a central role in supporting navigation, interpretation, and information access in tourism and cultural exploration. For decades, printed guidebooks and later static digital versions have provided travelers with standardized descriptions of destinations, landmarks, and routes. Although these formats offer general orientation and curated knowledge, they are inherently limited in their ability to adapt to individual preferences, situational changes, and rapidly evolving travel contexts.

Recent advances in artificial intelligence have reshaped the landscape of digital tourism services, giving rise to AI-based guidebooks that fundamentally transform how guidance information is produced and consumed. By integrating machine learning, natural language processing, and real-time data streams, these systems are capable of delivering personalized, context-aware, and interactive guidance [1]. As a result, guidebooks are evolving from fixed repositories of pre-authored content into dynamic systems that continuously adjust to user behavior, location, and environmental conditions. *This research aims* to conduct a conceptual examination of AI-based guidebooks and clarify their distinctive characteristics in comparison with traditional guidebook formats. *The object of the research* is AI-driven guidance systems in the modern tourism industry, while *the subject of the research* comprises the functional, technological, and conceptual features that define AI-based guidebooks, including personalization mechanisms, context awareness, and interactive user engagement [2].

Methodology

The study applies *a conceptual and analytical research method*, based on the synthesis and critical review of existing academic literature in the fields of artificial intelligence, tourism technologies, recommendation systems, and intelligent information systems [1, 2]. Through comparative analysis and theoretical generalization, the article identifies the key advantages and limitations of AI-based guidebooks and situates them within broader processes of digital transformation in tourism. By articulating a structured conceptual framework, this research aims to support future empirical investigations and inform the design and responsible implementation of AI-based guidebooks in tourism and related domains [8, 9].

Research results

Conceptual Background and Definition

AI-based guidebooks can be defined as intelligent digital systems that employ artificial intelligence techniques to generate, personalize, and continuously update guidance content for users. Unlike conventional guidebooks, which present pre-authored and fixed information, AI-based guidebooks dynamically construct content based on user profiles, contextual data, and learned behavioral patterns [2, 5].

From a conceptual perspective, AI-based guidebooks occupy an intermediate position between recommendation systems and interactive assistants. They not only suggest destinations or routes but also provide explanatory narratives, decision support, and adaptive guidance throughout the user's journey. This hybrid nature distinguishes them from earlier generations of digital travel applications [3]. The transition from static guidebooks to intelligent digital systems has been driven by both technological advancements and shifting user expectations for personalized and adaptive services in hospitality. Research in smart tourism consistently highlights custom tours as a central competitive advantage in digital travel experiences, enhancing engagement and satisfaction [4].

Defining Characteristics of AI-Based Guidebooks

Personalization constitutes one of the most distinctive features of AI-based guidebooks. By analyzing user preferences, past interactions, and explicit constraints such as time or budget, these systems tailor recommendations to individual needs [5]. Adaptive content generation allows the guidebook to evolve alongside the user's journey, refining suggestions as new data becomes available. This capability represents a significant departure from traditional guidebooks, which provide identical content to all users regardless of personal context.

AI-based guidebooks are inherently context-aware, incorporating real-time information such as geographical location, environmental conditions, transportation status, and event schedules [6]. This enables the system to respond dynamically to situational changes, for example, by proposing alternative routes or adjusting activity sequences. Such responsiveness enhances the practical relevance of guidebooks during real-world use and supports decision-making in uncertain or rapidly changing environments. An illustrative example of context-aware AI-based guidebooks is Good Tripper Guide, an AI-powered guidance tool designed to provide real-time historical and cultural insights related to a user's immediate surroundings [11]. By identifying nearby landmarks through location-aware technologies, the system delivers historical facts, narratives, and contextual information directly to travelers' devices, supporting learning and exploration during movement rather than prior planning.

Such systems demonstrate how AI-based guidebooks can transform everyday travel into educational and culturally enriching experiences. Instead of relying on pre-planned routes, physical guidebooks, or scheduled tours, users receive timely, situationally relevant content that reveals lesser-known stories and local heritage. This approach reflects broader trends in AI-powered travel guidance, including the growing demand for real-time historical interpretation, seamless cultural education, and mobile-first delivery of geographic knowledge. From an industry perspective, these developments highlight opportunities for tourism, educational technology, and mobile application sectors to collaborate in creating integrated AI-driven tools that blend travel assistance with informal, on-the-go learning.

Advances in natural language processing have enabled AI-based guidebooks to adopt conversational interfaces. Users can interact with the system using natural language queries, request clarifications, and receive explanations for recommendations [7]. This interaction improves accessibility and fosters a more engaging user experience. Through conversational mechanisms, AI-based guidebooks shift from passive information delivery toward active user support.

Another defining characteristic is the integration of multiple modalities, including textual descriptions, maps, audio narration, and visual elements. Multimodal delivery supports diverse user preferences and enhances comprehension, particularly in complex spatial environments [3]. In some implementations, augmented reality further enriches on-site guidance by overlaying digital information onto physical surroundings.

In practical implementations, multimodal content creation is increasingly supported by generative AI tools. AI-based image generators, such as Canva AI Image Generator, Picsart AI Image Generator, and Adobe Firefly, can be used to produce illustrative visuals, stylized maps, and contextual imagery that complement textual and audio guidance. When integrated responsibly, such tools can enhance visual storytelling and accessibility in AI-based guidebooks; however, their use also raises concerns regarding authenticity, originality, and representational accuracy of destinations.

The functionality of AI-based guidebooks relies on the integration of several technological components. Machine learning models enable the inference of preferences and the prediction of behavior, while recommendation algorithms generate traveler-focused suggestions [5]. Natural language processing helps geospatial analytics for route planning and spatial reasoning [6], as well as interaction and content generation [7]. Additionally, live data streams allow the system to remain up to date and contextually relevant.

The combination of these components creates a flexible architecture that differentiates AI-based guidebooks from traditional tourism information systems.

Conversational and content-generation capabilities within AI-based guidebooks are commonly enabled by large language models deployed through systems such as ChatGPT and Google Gemini [7]. These models support natural language interaction, dynamic explanation generation, and adaptive narrative construction. When combined with recommendation engines and geospatial data, such tools allow guidebooks to function as interactive assistants rather than static information repositories. Together, they show how conversational AI, generative content, and decision-support tools are shaping today's digital tourism experiences.

Compared to traditional guidebooks, AI-based guidebooks offer several advantages. They provide adaptive and personalized content, reduce information overload by filtering recommendations, and enhance discovery by identifying less popular or emerging points of interest [8]. Furthermore, their interactive nature allows users to engage with the system as an intelligent assistant rather than a static reference. These advantages suggest that AI-based guidebooks have the potential to significantly improve user experience and efficiency in travel-related decision-making.

Challenges

Despite their benefits, AI-based guidebooks face important challenges. One major concern is information reliability, particularly in generative systems that may produce inaccurate, superficial, or unverifiable content [9]. Privacy and ethical issues also arise due to the collection and processing of personal and location-based data [10]. Besides, excessive reliance on automated guidance may diminish the role of human expertise and local cultural knowledge.

A growing practical concern relates to the misuse of generative AI in the commercial guidebook market, particularly on large digital distribution platforms. Recent cases reveal an influx of AI-generated guidebooks that imitate the style and authorship of well-known travel writers, offering low-quality, repetitive, or generic content. In several documented instances, books attributed to seemingly credible authors were later found to lack any verifiable author background, raising questions about authenticity, accountability, and consumer deception. These guidebooks are often self-published through platforms such as Amazon's Kindle Direct Publishing, which permits AI-assisted content creation. The problem is worsened by using manipulating algorithms, fake reviews, keyword tricks, and stock images to make things look more visible and trustworthy than they really are. While platform providers have stated that content violating internal guidelines may be removed, the absence of transparent enforcement mechanisms and clear communication has raised concerns among consumers, publishers, and researchers.

Technological countermeasures are beginning to emerge. AI-detection tools, such as those developed by Originality.ai, assess the likelihood that content has been generated by artificial intelligence. Tests conducted on questionable guidebooks indicate extremely high probabilities of AI generation, underscoring the urgent need for disclosure and accountability in AI-assisted publishing. However, detection alone does not resolve broader issues of trust, governance, and platform responsibility.

Importantly, industry experts and AI practitioners acknowledge that while AI can support information aggregation and personalization, it cannot replicate the experiential knowledge, cultural sensitivity, and

contextual judgment provided by human travel writers [5, 10]. This tension reflects a broader divide within the guidebook and tourism industries regarding the appropriate role of AI. As AI-based guidebooks become more common, questions remain about how users can judge their credibility, how platforms should manage AI-generated content, and how marketers and creators can avoid spreading misleading or low-quality material. Addressing these challenges is essential for the responsible and sustainable development of AI-based guidebooks and for maintaining trust in digital tourism information systems.

Discussion

The conceptual analysis presented in this article highlights several distinctive features of AI-based guidebooks, including personalization, context awareness, multimodal delivery, and conversational interaction. These characteristics position AI-based guidebooks as transformative tools within digital tourism, offering adaptive guidance and enhanced user engagement compared to traditional guidebooks.

From a practical standpoint, AI-based guidebooks provide clear advantages in supporting decision-making during travel, promoting discovery of lesser-known sites, and enabling tailored cultural and educational experiences. The integration of tools such as ChatGPT, Google Gemini, and generative image platforms (Canva AI, Picsart AI, Adobe Firefly) facilitates dynamic content creation and multimodal interaction, enriching the user experience.

However, the study also underscores significant challenges that may hinder widespread adoption. These include risks associated with information reliability, AI-generated low-quality or deceptive content, privacy and ethical concerns, and over-reliance on algorithmic recommendations. The recent emergence of AI-generated guidebooks on platforms such as Amazon, exemplified by cases involving misleading authorship and fabricated content, further illustrates the need for governance, accountability, and effective detection mechanisms.

The findings suggest that the development and implementation of AI-based guidebooks must strike a balance between automation and human expertise, combining AI-driven personalization with curated cultural knowledge to maintain trustworthiness and contextual accuracy. There are also wider implications for the tourism and EdTech sectors, pointing to opportunities for mobile apps that offer real-time historical, cultural, and spatial insights, while also calling for clear rules and ethical guidelines to ensure the content is reliable.

Overall, the discussion emphasizes that while AI-based guidebooks offer transformative potential for tourism experiences, their deployment must be carefully managed.

Conclusions

AI-based guidebooks represent a significant evolution in guidance and information systems, characterized by user-specific guidance, context awareness, and interactive capabilities. This article outlines their defining specifics, technological foundations, and key challenges, contributing to a clearer conceptual understanding of the phenomenon. Research and practice should focus on mechanisms to enhance transparency, improve user trust, and integrate hybrid approaches that leverage both AI capabilities and human-curated expertise. Such efforts will be crucial in realizing the full potential of AI-based guidebooks while mitigating associated risks.

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