The Impact Mechanisms, Specific Methods and Effects of Generative AI in Digital Marketing for the Tourism Industry

Ye Yang

Shanghai University of International Business and Economics, Shanghai 201620, China
ye_yang0423@outlook.com

Abstract. With the advent of the Arificial Intelligence (AI) era, Generative AI has become a key driver of digital marketing transformation. As a pillar of the experience economy, tourism' s intelligent transition has also drawn growing attention. Generative AI is actively used in the tourism industry at present, but the existing literature has not been systematically analyzed in terms of consumer behavior processes and few studies have adopted an opportunity-challenges discussion framework in their analysis. According to the Attention, Interest, Search, Action, Share (AISAS) model and the Jobs-to-Be-Done (JTBD) framework, this research will use a systematic review method to investigate the processes, particular applications, and overall impacts of Generative AI in tourism digital marketing. The results suggest that Generative AI can encompass the whole consumer decision-making process and all travel situations, which means that it can be of great value in terms of accurate targeting, immersive experiences, personalized services, and spreading the word. Nevertheless, the use of Generative AI is also associated with such practical issues as confidentiality of data, ethical and cultural challenges, lack of novelty of content, and a lack of trust in the system. This study illuminates the inherent reasoning of how Generative AI can empower tourism marketing, seals gaps in the current mechanistic studies, and offer theory and practical advice to tourism businesses on precision marketing, intelligent transformation, and sustainable development.

Keywords: Generative Artificial Intelligence, Digital marketing, Tourism

1 Introduction

With the development of Artificial Intelligence (AI) technology, especially the break-through of Generative AI, every field in the society is faced with revolution,particularly the digital marketing. At the same time, rising residents' living standards and growing travel demand, tourism consumption has gradually become a crucial driving force for economic development.

The application of the AI in the tourism now is very common, but it still faces many challenges. The studies now have widely discussed the application situations, but it still has vacancy in systematically elaborating on how to serve a purpose by influencing consumer behavior mechanisms and balance with the opportunities and challenges.

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This paper conducts a systematic review to examine the influencing mechanism, specific application methods, and comprehensive effects of Generative AI in tourism digital marketing, with the aim of providing both theoretical insights and practical guidance for the field.

2 The Introduction of the Core Concept

2.1 Generative AI and its Advantages Compared to Traditional Marketing

Generative AI, different from traditional AI, uses the key Deep Generative Models (DGMs) to produce highly-similar but novel and realistic content such as the sentences, pictures and voice, based on the users' instructions. By contrast, traditional AI represents discriminative models that focus on determining decision boundaries through data analysis to achieve deterministic predictions and classifications and its outputs are deterministic, fixed and repetitive, making it less adaptable to the creative and personalized demands of modern marketing [1].

In the field of digital marketing, the merits of Generative AI are obvious. The traditional marketing tends to invest significant manpower in conceptualizing, creating and deploying marketing activities, wasting money and time. While the core capabilities of Generative AI like rapidly creating a wealth of diverse and personalized content, providing real-time, personalized interactive experiences and data insight and strategy optimization are all proved to be very useful and efficient in digital marketing.They can reduce the demands of workforce and costs and lead to higher engagement and conversion rates, thereby achieving a higher return on investment [2].

2.2 Introduction of the Attention, Interest, Search, Action, Share (AISAS) Methods

AISAS, a classic model to analyze the consumers' behaviors, includes 5 steps: attention, interest, search, action and share to reveal the entire journey of consumers from cognition to advocacy. It has already been widely used in evaluating the effectiveness of marketing in the light of consumer behavior to help enterprises and brands to accomplish the purpose of precision marketing [3]. This model will be used to explore the impact mechanisms when Generative AI is leveraged in digital marketing for the tourism industry. It can clearly study how Generative AI affect each step and how it can change consumers' behaviors and make changes to improve.

3 Impact Mechanisms of Generative AI in Digital Marketing for the Tourism Industry

Generative AI exerts systematic impacts on consumers' cognitive perception and behavioral patterns across every stage of the AISAS consumer decision journey. In this section, the study elaborate on how Generative AI, leveraging its core capabilities enabled by contemporary technologies, influences consumers at each stage of the decision-

making process. By analysing in each steps, people can have a better understanding of why it is effective and beneficial to use GenAI into the digital marketing of the tourism.

3.1 Attention

At the attention stage, the most important thing is to increase brand exposure to acquire the attention of new users [3]. On the supply side, Generative AI enables to generate the large-scale, high-efficiency batch production of marketing content, diverse promotional formats and localized versions in different languages to empower marketers to produce and distribute promotional materials at a scale and speed previously unattainable.It can not only automatically create various digital marketing content like the advertisements and short videos by following the instruction of marketers, but also provide inspirations and theme suggestions in accordance with marketers' requirements [4, 5].

On the demand side, it can use Machine Learning (ML) to report in big data and predict a holistic profile of the customer and based on the profile, Generative AI can prescribe the type of tourist destinations, accommodation and activities that customers would be interested in [6]. The marketers can reach the customers and capture their attention more effectively and efficiently depending on the personalized and precision-targeted marketing strategies.

3.2 Interest

The intention at the interest stage is to enhance the active users [3]. To ensure long-term focus and encourage exploration desire, Generative AI can increase user interests by responding instantly and providing immersion with the help of Augmented Reality (AR) and Virtual Reality (VR) . Chatbots connected to AI will be able to offer 24/7 interactive customer service, responding to their requests regarding travel itineraries, destination, booking processes and other local attractions [6, 7]. By doing so, they will be able to enhance efficiency in resolution and make users more satisfied and retentive, making them more engaged. Also, AR and VR can provide innovative experiences, which are aesthetically impressive and immersive by visualizing and simulating real-life situations [7]. Moreover, through the personalized marketing discussed above, Generative AI is capable of reaching out to consumers and establishing an emotional appeal through the attainment of sophisticated personalization in online and offline contexts [7].

3.3 Search

At this stage, where consumers are passive consumers of information, they begin to be active consumers of information by taking to the search engines to determine the authenticity, cost-efficiency, and practicality of the information and they engage in horizontal comparisons. In reaction, digital marketers implement three major tactics: Search Engine Marketing (SEM), Search Engine Optimization (SEO), and App Search Optimization (ASO). The logical idea behind SEM is to add advertisements to the search engine results pages (SERPs) to enhance brand awareness in search processes among

users and traffic to the target sites [5]. In SEM, using Large Language Models (LLMs) with the help of generative AI, the search intent of the user can be understood, rather than just the individual words, which greatly enhances the result of the search engine to meet the expectation of the user [8].

SEO is a tool that boosts organic search results by maximizing the content of the websites (rather than using paid advertisements) and creating free traffic by users [5]. As stated by Bujdosó, Generative AI is capable of generating various online marketing content and generated high percentage of content in SEO to improve the organic rankings of websites. Lacárcel also analyzes that Sentiment Analysis (SA) of Generative AI is an important application, which can be used to analyze user feedback, continuously optimize SEO content, improve the satisfaction of search intent and further enhance search rankings [6].

ASO refers to optimizing apps organically in app stores to improve their rankings for specific user searches [5]. Generative AI can dynamically adjust app recommendations based on users' search history which can improve conversion rates through personalization [7]. In comparison with the previous two, ASO demonstrates peculiar benefits in tourism marketing in the form of mobile-focused immediacy and context-oriented adaptability which allows tourism platforms to further suit the on-the-go tourist demands and increase the efficiency of real-time decision-making.

3.4 Action

In the action stage, the marketers are required to encourage the users to finalize the buying process [3]. Firstly, with the help of the accurate match, Generative AI can create highly tailored solutions to travel products directly and exactly, to ease the decision-making friction of customers and accelerate the process of converting the defined needs of the users into final purchase choices [5, 6]. Secondly, the cost of information search provided by the features of Natural Language interaction can be reduced by Generative AI to shorten the number of bottlenecks to action. It can provide 24/7 real time response to purchase queries, multi language support and solution to information asymmetry problems as an example [5, 8]. Also, information asymmetry can be resolved by using AI-generated digests of genuine feedback and compliance validation to build customer trust [4].

Unbelievably, Generative AI is also capable of assessing the social behavioral patterns of the users so that the companies can alter their marketing strategies to provide the personalized incentives and deliver the focused advertisements. Applicability To apply to scarcity marketing and social proof strategies, one can use Generative AI successfully, as it has the ability to generate time-limited promotion copy and user-generated content (UGC) that appeals to preferences in travel and trends in making a purchase, and reinforces the urge to make a purchase and reduces the purchasing hesitation [4, 7]. Finally, the platform simplifies the entire buying process and experience by interpreting the data of customer purchase behavior to improve the rate of conversion and repurchase among the customers [6, 8].

3.5 Share

Marketers will encourage the customers to write about their buying experience during the phase of shares to achieve the secondary dissemination of UGC.

The Generative AI is ubiquitous, which makes the creation barriers lower. In addition, Generative AI can create personalized sharing content, such as travel journal drafts or social media captions, applicable to the travel preferences and emotional experiences of people. This reduces the psychological cost of producing content amongst the users, enhances the perception of content authenticity and desire to express oneself which consequently encourages active sharing habits among the user population [7]. It will streamline and make easier the process of sharing, which will allow the customers to share. Besides, the contents and the description displays tend to be more appealing after the AI has been processed and can induce other individuals to post by their own will, extending the chain of UGC distribution [4].

4 Specific Methods and Effects

AISAS reveals modifications in the behavioral patterns, yet it does not provide the reasons why users choose Generative AI over the traditional tools in this or that case. To close this gap, this study have also employed the Jobs-to-Be-Done (JTBD) model to unveil the motivation behind it, and transforming it into specific application practices of Generative AI in tourism marketing. With the JTBD model, the consumer needs are overlaid onto a three-step life cycle; Inspiration and Planning (Pre-trip), Experience and Interaction (On-trip), and Memorizing and Sharing (After-trip).

4.1 Inspiration and Planning (Pre-trip)

Before the travelling, people usually need to make the decision of the destination and the planning in advance. However, it always takes a long time to make the decisions owing to the financial, working or other obstacles, especially in the Web 3.0 era [5]. It is commonly acknowledged that in this era, intense information overload pose a severe challenge to the consumers [4]. At the same time, the traditional marketing also faces the problems like the lack of the precise analysis of the consumers' behaviors and preferences and the difficulty of capturing the attention of the targeted customers efficiently [5]. To address these dual challenges, Generative AI can offer a robust solution.

Nuraeni, Purnomo and Hidayat noted in their study that the core tools of Destination Management Organizations (DMOs) are AI-driven solutions such as chatbots and recommendation engines, which are used to enhance destination awareness, tourist trust, and perceived service quality. It can provide consumers with instantly generated personalized itineraries, automated customer service, and precisely targeted visual advertising content, significantly reduce the time cost of the consumers' information filtering and decision-making. Taking the Klaten region of Indonesia as an example, local tourism enterprises successfully adjusted their marketing strategies by deploying this tool. The specific implementation results showed that tourist engagement and interaction

quality had significantly improved, while effectively strengthening Klaten' s brand image as a cultural heritage destination. In addition to the case, these functions have already been implemented on some OTAs like Skyscanner and Booking [7].

Consumers are then left with the task of making travel itineraries and reservations after receiving travel inspiration. The common problems are many choices and tough decisions. Generative AI could enhance the pre-trip process by using intelligent matching, automated generation, and one-click booking to deal with the challenges. As an example, the Trip. com AI Itinerary Assistant has the ability to create differentiated tours depending on the input of the tourists in terms of interests and preferences. It then automatically aligns appropriate transportation, lodging, and scenic area ticket assets to form a customized travel plan to provide tourists with an individualized and easy cultural tourism service [10].

4.2 Experience and Interaction (On Trip)

The experience and interaction are two key aspects of a trip that consumers are concerned with during the process of trips [6]. Generative artificial intelligence-based concierges, e.g. Connie at Hilton and the Rose at Cosmopolitan, can communicate with traveling tourists in real-time, addressing practical issues they may face, as Abid et al observed [8]. As an example, they may offer custom route recommendations or book restaurants and events when you are stranded on a trip via real-time communication using face-to-face conversations depending on the needs of the consumers, which increases the interaction of the tourist and makes his/her trip more meaningful.

Moreover, Genertive AI can also be used to complement the marketing of stories through the assistance of AR, VR or metaverse to make tourists more immersive and interactive [8, 11]. The Palace Museum in China has already been the pioneer of using the Generative AI and other cutting-edge technologies into culture and tourism industry on this point. One featured experience, "Conversations with an AI Emperor," allows users to engage in dialogue with a virtual Emperor Qianlong, a renowned Qing Dynasty ruler who reigned from 1735 to 1796, known for consolidating imperial power and presiding over a golden age of Chinese culture and even discuss state affairs with him.

4.3 Memorizing and Sharing (After-Trip)

After the trips, tourists usually try to keep their treasure memories and share some of the experiences on the social media. In terms of helping customers to record the memory, Generative AI like ChatGPT and Notion AI can generate personalized eloquent travel diaries, blog drafts or social media copy.by inpputing travel notes, photo descriptions, and location information [4, 8]. The case study of Klaten by Nuraeni, Purnomo, and Hidayat has demonstrated that AI-generated travel memorabilia can significantly enhance tourist satisfaction and emotional connection, strengthening visitors' retention of destination memories [9].

Following the customer sharing, marketers can employ the methods of Natural Language Processing (NLP) including sentiment analysis and topic recognition to process the content [9]. This allows the marketers to easily determine the issues that have been mentioned regularly and they can easily pinpoint the service deficiencies. Such lessons

can be optimized and improved upon, which leads to improved service delivery to the tourists in the future [10]. To illustrate, AI can help determine the most popular tourism activity, which can guide scenic areas to allocate resources maximally, as well as focus more resources and effort on the projects that are associated with the greatest tourist satisfaction. In the meantime, the information received as a result of the analysis can also be used to market travel souvenirs or specialty products to tourists by marketers, thus facilitating secondary purchases and conversions of repeat sales [12].

5 Discussion and Suggestion

In general, the results of the analysis that used the AISAS model and the JTBD framework show that Generative AI can have a substantial and a beneficial effect on consumer behavior throughout the whole process of tourism consumption. In addition, it can generate a physical value to the tourists and the marketing professionals in the practical use. Nonetheless, it is imperative to point out that Generative AI is mainly used as a supporting tool in marketing. Finally, the ultimate market decisions should be in the hands of professionals. In case the entire strategic decision-making process is entrusted to artificial intelligence, the acute understanding of cultural context, brand spirit, and market dynamics in real time that trained marketers have might be lost, thus posing possible risks. Hence, to create a sustainable marketing system, it is necessary to presently define how the division of labor and collaboration between AI and human professional judgment is designed in workflows.

5.1 Challenges

There is no denying that the usage of Generative AI makes the digital marketing more effective and efficient. But challenges still exist when this cutting-edge technology is used in the real-world tourism industry.

Many functions of Generative AI involve the referencing and borrowing, like the massive datasets used in model training, which easily raise concerns about personal privacy, copyrighted content, and biased, erroneous, or harmful information.

Especially in practical implementation, data silos and unstandardized platform management significantly exacerbate the risk of tourist privacy leakage. For example, Zheng & Wu pointed out in the research that the lack of interoperability among various scenic area systems and the absence of management protocols results in tourist information being exposed across multiple endpoints.

In the meantime, cultural and ethical risks may be generated by the inaccuracy and malicious information that Generative AI operates on, with the result of distortion and misappropriate commercialization of cultural heritage in tourism [9]. This has the stereotyped descriptions of local cultures or simplified, inaccurate retelling of the historical accounts. To take one example, when AI transforms past traumas, such as war or social tragedy, into light entertainment, such as parodies or games, it substitutes serious memory with the consumption of pain. This not only reduces the educational value of history, but can also cause new emotional and identitybased damage to communities that are affected.

Moreover, mentioning the content that can be created by AI, as well, might cause the lack of originality and content in the promotional material, which may result in the development of a negative attitude to the topic [6, 9].

Nonetheless, the ethical issues of data privacy and suspicion of AI can also restrain the evolution of the application of AI in digital marketing simultaneously and this can render the viable marketing schemes ineffective [6].

5.2 Suggestions

In an attempt to meet such challenges, data privacy and culture accuracy should be put at the forefront when using Generative AI in the digital marketing of tourism. Nuraeni et al point out that traveling businesses should not violate laws on data privacy and they should enhance security systems to balance personalized services against privacy protection [8]. Moreover, the legal framework in the sphere of artificial intelligence should also be actively developed by society and the government so that the technological innovation could be promoted, yet the safety and ethical compliance were not violated.

Meanwhile, businesses have to train AI skills among tourism marketing staff [9]. Bulchand-Gidumal et al. also mentioned that in using Generative AI in the digital marketing of tourism, the key lies in the cooperation between human and AI [6]. Although the primary tasks that can be assigned to Generative AI include batch content creation, data processing, multilingual copywriting, and material creation, marketers will be oriented at high-value activities, including strategic planning, cultural oversight, ethical review, creative decision-making, and emotional communication. Such a division of labor may promote marketing efficiency and the quality of content, as well as push organizations toward talent growth in the field of AI implementation, content management, risk control, and cross-domain cooperation, which will further promote the overall competitiveness of organizations.

Lastly, it is suggested that the tourism sector should invest in the creation of specific AI tools and models that would address the operational and cultural demands of the sector, instead of using generic AI solutions.

Nuraeni et al indicated that generic AI tools have not always been able to satisfy the tourism industry with cultural specificity, immersive experiences and context-aware adjustments. In contrast to general models, tourism-specific AI demands special technical solutions such as cultural heritage knowledge, scene-related contextual perception, multimodal immersive experience, and the creation of localized content. With these AI systems, it is possible to build localized data and cultural understanding to provide a highly personalized service that is more specific to industry requirements. However, AI solutions adapted to a tourism industry can be used to incorporate local data, cultural understanding, and industry-specific operations and offer travelers even more personalized services that better address their needs.

6 Conclusion

In conclusion, the paper is devoted to the mechanisms of impact, particular methods, and effects of Generative AI on Digital Marketing of the Tourism Industry, basing on

AISAS model and the JTBD framework. It is evident that in all the consumer behavior phases and the full travel process, Generative AI can be extremely useful in offering a highly practical value in terms of tourism marketing use. With the knowledge on the impact of generative AI and how it can be used in various phases of the consumer behavior, tourism enterprises can make use of AI tools in a more accurate way, thus creating more effective marketing strategies, improving precision marketing and immersive storytelling features.

Nevertheless, despite such apparent advantages of Generative AI efficiency and personalization, there are several threats to its implementation, including privacy threats, ethical and cultural issues, the lack of originality in the content generated, and low user trust. The tourism enterprises are encouraged to ensure data safety and cultural correctness, train employees on AI skills, and create specific AI tools and models instead of using generic ones to facilitate its sustainable and healthy development.

This study elucidates the logic of action of generative AI in the field of tourism digital marketing and bridges the gap in the systematic analysis of mechanisms. It is a clear theorization and practical advice to the tourism marketing innovation and smart change.

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