THE DEVELOPMENT OF METAVERSE TECHNOLOGY TO RAISE UP THE STANDARD OF HEALTH TOURISM

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Abstract: This research aims to: 1. Investigate the factors of Metaverse technology development for VR spa glasses and their impact on the evolution of Metaverse applications for marketing; 2. Examine how the development of Metaverse applications for marketing influences the promotion of health tourism grounded in Thailand's creative economy (BCG). This study employs a mixed-methods approach. It involves surveying 372 tourists who utilized spa and Thai massage beauty services using a questionnaire. Additionally, focus group discussions were conducted with entrepreneurs and executives instrumental in elevating the standards of medical tourism. The data were analyzed using multiple regression analysis. The findings indicate that the advancement of Metaverse technology for VR spa glasses, encompassing aspects like content, functionality, and design, has significantly influenced the development of Metaverse applications for holistic marketing. This includes sensory experience, sensational experience, thought experience, action experience, and associated experience, with a notable $R2$ value of 0.590. The study also revealed that the development of Metaverse applications for marketing, encompassing aspects such as sensory experience, cognitive experience, action-oriented experience, and connected experience perceptions, significantly influences the overall drive of health tourism based on the creative economy (BCG) in the country. This encompasses factors like environmental friendliness, fairness, safety, cleanliness, and convenience, with a notable $R2$ value of 0.509.

Key words: Metaverse Technology for VR Spa Glasses, Metaverse Application development for Marketing, Metaverse Application development for Marketing, Promoting health tourism based on the creative economy (BCG) in the country, Perception through sensory experiences

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INTRODUCTION

Under the 13th National Economic and Social Development Plan, Thailand is embarking on a transformation into a progressive society with a focus on a 'Sustainable Value Creation Economy'. The National Strategy on Tourism (2018-2037) highlights the 5th tourism destination, emphasizing Thailand's commitment to retaining its status as a world-class tourism destination. Comprehensive development of the tourism infrastructure is essential, with an emphasis on attracting quality tourists and diversifying tourism experiences to meet their needs. The strategy also prioritizes the promotion of tourism in areas with significant potential, all while cherishing and preserving the nation's unique traditions, culture, and Thai identity. In addition to emphasizing the value of natural resources and the environment, the set objectives are: (1) to increase the contribution of tourism to the country's GDP, (2) to boost tourism revenue in secondary cities, and (3) to enhance the overall tourism competitiveness, all aiming for a better Thailand.

This is in alignment with the national strategy to enhance competitiveness, as detailed in the National Economic and Social Development Plan No. 13 (Chatkaewnapanon and Lee, 2022). However, since the emergence of the COVID-19 pandemic in December 2019, global tourism has seen a significant downturn. Restrictions on international travel remain in place, leading to a marked decrease in foreign tourist arrivals to Thailand, the most significant in over a decade. While vaccinations have been introduced to combat COVID-19, they haven't effectively controlled the spread of the virus's mutated variants. Based on the preliminary data from the Ministry of Tourism and Sports regarding foreign tourist arrivals to Thailand in 2021 (from January to October), there were 6,692,775 tourists in 2020. However, this number dramatically decreased to only 106,117 tourists in 2021. This is a staggering 98 percent decline, marking the most significant drop ever noted, as mentioned in the Master Plan of the 5th National Strategy on Tourism (Niyom et al., 2022).

Consequently, entrepreneurs must adapt by leveraging digital technology to cater to the changing preferences of modern tourists. This adaptation is particularly essential for attracting high-quality tourists from regions such as China, the Middle East, and South Asia, who have substantial purchasing power. In line with the principles set by the National Higher Education, Science, Research, and Innovation Policy Council, a strategy has been put forth to rejuvenate Thai tourism in the post-COVID era. This approach seeks to turn the crisis into an opportunity by enhancing products and services related to medical tourism, beauty, and Thai traditional medicine. Through the integration of creativity, science, technology, and innovation, with a particular emphasis on Health & Wellness and Digital Transformation, the aim is to position Thailand as the leading 'World Health Tourism City'. This is because Thailand has been lauded for its public health system, compassionate care, and effective management of the COVID-19 spread (Wongmonta, 2021).

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Tang et al. (2021); conducted research on the significance of VR technology in the spa industry in China. Their findings revealed that spa users rapidly recognize the benefits of VR from the initial check-in, through waiting rooms and treatment sessions, to check-out. These insights assist spa professionals, owners, and practitioners in making informed decisions to enhance spa facilities, ultimately improving service efficiency and providing a unique experience for guests. According to a forecast by the Boston Consulting Group (BCG), Thailand's tourism economy is projected to fully recover by 2024. This recovery is accompanied by intriguing Thai consumer trends that present fresh opportunities for reshaping the tourism sector. These trends include: 1. Crafting novel travel experiences tailored to the preferences of Gen Y and Gen Z, the emerging travel-savvy generations. 2. The rise of medical or health tourism, which is garnering interest from both Thai and international tourists. BCG anticipates that by 2027, medical tourism in Thailand will witness a growth of 13%. 3. Adapting to the modern marketing landscape, which is heavily influenced by social media and digital technology, both playing pivotal roles in shaping travel decisions. 4. Prioritizing technological advancements and environmental considerations. This encompasses the introduction of innovations like Metaverse and AR technologies, virtual meeting spaces, and an emphasis on eco-friendliness. Cleanliness and hygiene are also being spotlighted as crucial selling points. 5. The emergence of the 'Hotel+' concept, which goes beyond mere accommodation. This innovative approach integrates various services such as co-working spaces, health centers, and shopping hubs, offering a comprehensive tourism experience (Liu et al., 2018).

Given the aforementioned reasons, the researcher is motivated to utilize Metaverse technology to enhance the standards of health tourism, targeting high-quality tourists within the nation's creative economy framework. The primary objective of this research is to investigate the use of Metaverse technology for VR spa glasses and to comprehend the marketing tactics that drive the promotion of health tourism anchored in the creative economy. This study is in line with the Boston Consulting Group's (BCG) vision for the country: achieving competitiveness, sustainability, and future-readiness through scientific research and innovation. Additionally, the research underscores the significance of employing technology to boost tourism marketing effectiveness, all while upholding social responsibility and environmental sustainability.

LITERATURE REVIEW
Metaverse Technology for VR Spa
A literature review highlighted that (Beták et al., 2023); has innovatively employed virtual reality technology to provide a distinct relaxation experience to its users. It replicates the ambiance of a day spa, which is designed for brief visits without overnight stays. What sets it apart is the absence of traditional massage beds. Instead, users in Los Angeles can be virtually transported to tranquil settings, such as a tropical island, where they can feel the sun's warmth and relax in a high-end massage chair. With 10 immersive experiences to choose from, including 'Paradise Garden' and 'Snow Hut,' users are given the sensation of a short getaway. A 30-minute session is priced at $45, and bookings can be made on the Esqapes Immersive Relaxation website. This service combines the innovation of VR technology with the feel of a traditional spa. Examples of integrating VR technology with traditional spa services include incorporating VR into treatments. Customers can unwind using VR prior to their massage or opt for a VR-only spa experience. Furthermore, this technology is utilized for promotional efforts to attract new customers and to offer incentives to existing ones. This represents a pivotal change in the spa and wellness industry. Given the rise of the "wellness everywhere" trend, spa-like services are now available in diverse settings, including airports, offices, and hospitals.

Hence, spa operators who incorporate VR technology into their services can stand out and achieve a competitive edge. Notably, masseuse wages often constitute a significant portion of a spa's expenses. If VR technology can help mitigate these costs, it's understandable why traditional spas are considering or embracing this innovation. Furthermore, millennials represent the demographic that visits spas most frequently. They are also passionate about technology, considering it an essential aspect of their lives. This generation exhibits unique habits and preferences that distinguish them from earlier generations. Notably, they are twice as likely to invest in a VR headset compared to their predecessors. Numerous studies have underscored the rising rates of depression, anxiety, and loneliness among American youth. These trends can be traced back to various factors, including the prevailing political and social climate, financial challenges, and the pervasive impact of social media. Consequently, many individuals are gravitating towards mental well-being practices such as yoga and meditation. Therefore, prioritizing good health is of paramount importance (Dwivedi et al., 2022).

According to (Rahmani et al., 2023); the future of relaxation is described as the "Virtual Spa." In a virtual spa, users don a head-mounted device that displays serene landscapes. Imagine gazing upon a lush garden, looking up to see the expansive branches of a towering tree, or witnessing the mesmerizing waves of a desert set against the amber hues of a sunset, all from the comfort of a private in-room pool. The experience engages more than just the sense of sight; it encompasses all sensory perceptions. Ears are serenaded with ambient sounds of nature, such as rustling winds and gentle rain, or perhaps soothing whispers guiding one through meditative breaths. A gentle fan replicates the sensation of a soft breeze on the face, complemented by the delicate aroma of essential oils. The journey concludes with the gentle vibrations of an automated massage chair, enveloping the user from head to toe. Such an immersive experience is offered under the name 'Relax VR'. Offering the aforementioned services, Relax VR Spa provides a 30-minute relaxation session for the brain and mind. This concise duration is ideal for corporate employees, allowing them to rejuvenate during their lunch break and return to their afternoon tasks with renewed energy and clarity (Csobán et al., 2022).

This vision aligns with that of Sourabh Jain, the founder of San Francisco-based Relax VR. With a background in yoga and meditation, he was inspired to create a virtual spa after experiencing VR for the first time. He noted that upon experiencing an underwater world simulation, he became convinced of the technology's potential in promoting relaxation.

This revelation inspired him to leverage VR's capabilities and establish a concrete virtual spa business. This resonates with research conducted by scholars from Harvard University and the University of Southern California. Their studies indicate that VR technology can genuinely enhance users' mental health, with its efficacy rooted in its immersive realism. Hence, virtual spas possess the capability to enhance relaxation and diminish anxiety and negative emotions in users. When integrated with meditation and stress management strategies, the benefits become even more pronounced. Nevertheless, when used judiciously, virtual spas appear to be effective tools for managing daily stress. They offer quick and cost-effective solutions, a concept that Relax VR emphasizes by marketing their virtual spa program to various spa establishments. This approach not only diversifies service offerings but also reduces operational costs. Given that millennials, constantly immersed in technology, often experience physical and mental tension, they can benefit from these brief relaxation sessions. After a short break, they can immediately return to their tasks rejuvenated (Wang and Yu, 2023).

Metaverse Application for Marketing

In today's landscape, developing Metaverse applications for marketing necessitates the integration of Augmented Reality (AR) and Virtual Reality (VR) technologies with the principles of experiential marketing. This combination aims to craft positive experiences that resonate both physically and emotionally with users. Organizations can craft and convey experiences to customers using marketing strategies. These experiences begin with sensory communication and perception, termed as 'Sense'. This leads to the building of attitudes or 'Feel', which then encourages customers to 'Think'. This thought process subsequently results in actions or the consumption of products, labeled as 'Act'.

The ultimate goal is to establish a connection rooted in personal experiences and extend it to broader communities or groups at various levels, known as 'Relate'. As noted by (Buhalis et al., 2022); virtual reality marketing strategies can craft immersive experiences for customers via Metaverse marketing. This cutting-edge technology offers a vivid visual experience, making customers feel as if they've genuinely lived it, a sensation distinct from viewing on a conventional two-dimensional screen. Virtual Reality and the Metaverse are burgeoning technologies that craft distinctive experiences for users. In fact, 62% of consumers claim they feel more engaged with a brand through these mediums than with traditional physical marketing. Concurrently, over 71% of consumers perceive brands utilizing virtual reality marketing as consistently forward-thinking. For instance, ANA leverages virtual reality marketing to showcase its 777-300ER flight, offering a virtual tour of the Business Class cabin and more (Novotny et al., 2015).

Similarly, Volvo offers a virtual reality test drive of their XC90 SUV using Google Cardboard. This allows customers to immerse themselves in a lifelike experience of the XC90 SUV without physically visiting a showroom. Aligning with Pramote Yodkaew's findings (2021, page 17), modern digital marketing in the Metaverse era emphasizes creating perceptions that mirror reality. These perceptions can be experienced via electronic media and devices, ranging from social media platforms to streaming applications, and tools like Google, SEO, SEM, YouTube, and Facebook. These marketing strategies are tailored uniquely to digital marketing goals and evolve based on the requirements of entrepreneurs, consumers, and the broader community (Szymczak, 2019).

According to (Dwivedi et al., 2023); there's an increasing trend towards health-focused business models. Many companies are leveraging Augmented Reality (AR), Virtual Reality (VR), and Extended Reality (XR) technologies to drive medical innovations, such as virtual surgical simulations and advanced psychiatric treatments. Khasawneh et al., (2023) also emphasized that in the metaverse era, digital marketing intersects with the health and beauty sectors, opening new avenues for entrepreneurs (Ioannidis and Kontis, 2023). This encompasses product sales, diverse content presentations, and direct consumer engagement. By crafting compelling product and service descriptions, businesses can tap into new revenue streams, ensuring their digital marketing strategies captivate online consumers.

In the Metaverse, consumers can interact with a store's products or services using their avatars, facilitated by smart devices equipped with AI-enabled software. Online advertising and marketing not only bolster the store's brand but also offer consumers immersive experiences through Virtual Reality (VR), Augmented Reality (AR), and Mixed Reality (MR). Simultaneously, these platforms can be utilized to host events like product launches, virtual concerts, fashion shows, or movie screenings. Buhalis et al. (2023) the immersive virtual imagery crafted makes users feel as if they are truly a part of the depicted scene. This unique aspect of the Metaverse sets it apart from the real world, offering brands a distinctive platform. For instance, Walt Disney has leveraged this, transforming iconic movies like Star Wars into immersive Metaverse realms using game development techniques. Similarly, brands like Nike and Gucci have ventured into the Metaverse, allowing users to create avatars and customize their appearances, including outfits, to their liking (Wåhlström and Sun, 2022).

Table 1. Data Source on the Impact of Metaverse Applications for VR Spa Marketing

Data source	Impact of Metaverse Applications for VR Spa Marketing				
	SENSE	FEEL	THINK	ACT	RELATE
Buhalis et al., (2023)	√		√		√
Ioannidis and Kontis, (2023)		√		√	
Novotny et al., (2015)	√		√		√
Szymczak, (2019)		√		√	
Wåhlström and Sun, (2022)	√		√		√

Metaverse technology to drive health tourism based on the creative economy (BCG)

While many businesses across various industries are leveraging virtual reality technology for marketing advantages, no major tourist destinations or entrepreneurs have yet harnessed its full potential for tangible benefits. In the aftermath

of the COVID-19 pandemic, traditional tourism marketing strategies might not be as effective. Metaverse technology can simulate travel experiences in a virtual realm, providing tourists with a more authentic sense of notable destinations. This immersive insight can be pivotal in their travel decision-making. Furthermore, as the Metaverse technology unveils new markets for attractions, it facilitates income distribution and the creation of products tailored to tourists' needs.

This helps bridge disparities, as virtual tourism is inclusive, catering to all genders, ages, and backgrounds. It encompasses a broad spectrum of tourists, from baby boomers and Gen-X to Gen-Y and Gen-Z. Once tourists engage with and appreciate the presented tourism information, it can prompt them to plan their trips or make pre-bookings to experience the destination firsthand. While the experience derived from the actual location will undoubtedly differ, it's essential for all stakeholders to impart knowledge to users, ensuring mutual understanding and setting clear expectations. (Feng et al., 2023); As we transition into this virtual realm, workforce development becomes crucial. Personnel should hone the '4 ABCD' skills, which are pivotal to the digital business model: Art (crafting the virtual world), Business (for commerce and marketing), Content (developing engaging material), and Digital expertise. Relevant organizations will need to either recruit individuals with these skills or foster communities that nurture and develop these proficiencies, ensuring a sustainable transition into the digital age.

This aligns with (Kim et al., 2018); 'Incheon's' evolution as a model city in South Korea, which has seamlessly transitioned into a 'Smart City'. It employs Metaverse technology to enhance tourism in both the tangible and virtual realms, integrating AR and VR concepts to enrich travel experiences. For instance, tourists equipped with a single communication device can enhance their journey. By simply pointing their device at a road, arrows appear, guiding them towards nearby attractions and more. Furthermore, AR and VR technologies simplify travel for everyone and minimize communication barriers. Visitors have the option to select a tour guide in their desired language. Subsequently, a virtual guide materializes, providing detailed explanations about the significance of the location.

In Thailand, the Metaverse has been employed to enhance the tourist experience in the ancient city of Ayutthaya. By simply donning special glasses and following a designated path, tourists can witness visuals of Ayutthaya as it appeared 300 years ago, before its devastation from war. This VR device encapsulates information about the way of life, architecture, and various art pieces without the need to physically restore ancient sites, preserving their intrinsic value. Iconic figures, such as Thao Thong Kip Ma, emerge to guide visitors around the island of Ayutthaya. The experience culminates with a display of royal dishes, where users can click to access details about ingredients and origins for each menu item, among other features (Suanpang et al., 2022). This aligns with the Department of Tourism's 2023 initiative, which emphasizes the promotion of the BCG Tourism trend. This strategy aligns with the country's BCG economic model, focusing on enhancing products or services in existing tourist destinations, especially those in local communities, to stimulate economic circulation through systematic planning. The process begins with design and production at the source, ensuring that raw materials are used efficiently and can be repurposed or enhanced.

This approach not only reduces the consumption of raw materials but also optimizes their use, leading to increased revenue from tourism. Additionally, there's an emphasis on promoting tourism with a focus on environmental sustainability. This involves minimizing chemical usage and reducing waste, while also finding ways to repurpose waste into valuable resources. Health tourism, for instance, prioritizes rejuvenation in picturesque destinations, emphasizing relaxation. Products and services are elevated to meet cleanliness, convenience, and safety standards in line with the BCG economic model. Examples include promoting traditional massages using natural herbs, hydrotherapy, and vitamin therapies like Vitamin Drip during travel, among others.

In 2023, the Tourism Authority of Thailand (TAT) undertook initiatives to develop regions and coordinate activities in both the real and virtual realms via Bitkub Metaverse. Their objective was to rejuvenate the Thai tourism sector by harnessing the potential of Metaverse technology. In collaboration, a dedicated building was established on Bitkub Metaverse to serve as a hub for disseminating information about Thai tourism. Significant Thai tourist landmarks were integrated into Bitkub Metaverse, designed to inspire visitors. Tourists can engage on Bitkub Metaverse using digital vouchers and NFTs, with attractions showcased as pop-up seasonal events. To promote sustainable tourism year-round, activities are designed by blending the virtual realm with 3D images and videos from real-world locations. This allows tourists to explore Thailand's attractions and shop for souvenirs on Bitkub Metaverse. They can then redeem these items using NFTs and have them shipped to their home countries (Chulaphan and Caceres, 2023).

In the subsequent phase, the emphasis will shift to eco-tourism, which prioritizes the value of the environment and stresses the importance of maintaining ecological balance. This includes promoting low-carbon emission activities. For instance, at island and marine attractions, tourists will be encouraged to opt for cycling tours around the island instead of using cars or motorbikes. There will be a push against water-polluting sports activities and campaigns to collect trash during tours. This collected waste can then be repurposed into products like coffee cups or plant pots, generating revenue for the community. Such initiatives also aim to heighten tourists' environmental awareness. Additionally, the use of solar energy for services at accommodations or hotels will be promoted.

METHODOLOGY

This research is a mixed-methods study with the objectives of: 1. Studying the factors influencing the development of Metaverse technology for VR spa glasses that affect the development of Metaverse applications for marketing, and 2. Investigating the development of Metaverse applications for marketing that impact the promotion of health tourism based on the creative economy (BCG) in Thailand. The research will proceed with the following activities.

Population and sample

The researcher organized a Focus Group Discussion with five key executives engaged in elevating medical tourism standards. The participants included:

1.The Chairman of the Tourism Industry Federation of Samut Songkhram Province,

2.The President of the Confederation of Thai SMEs in Samut Songkhram Province,

3.A representative from Tourism and Sports in Samut Songkhram Province

4.The Managing Director of Theewong Family Company, and

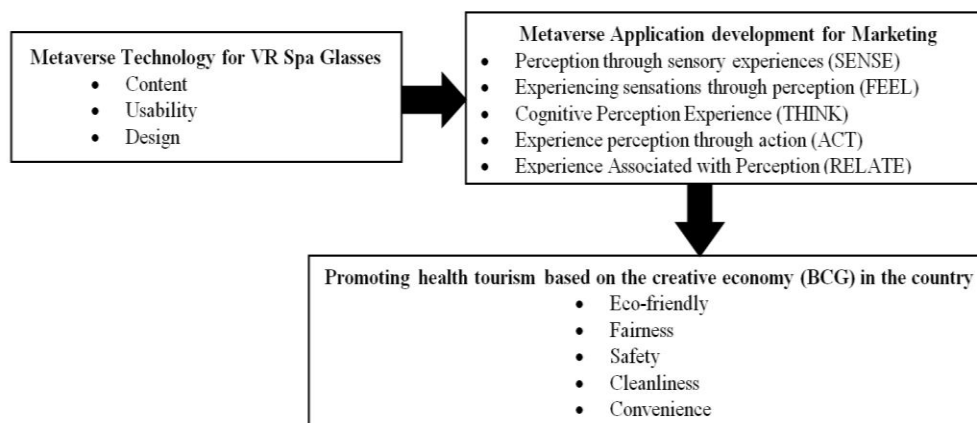5.The company manager of Treetara Riverside Resort & Spa.

Figure 1. Conceptual framework

Participants were selected based on the purposive sampling criteria outlined by Tongco (2007). Additionally, quantitative research was conducted by identifying the target population and sample, which included tourists who visit Samut Songkhram Province for spa, beauty, and Thai massage services. A stratified random sampling technique was employed, where individuals were randomly selected from diverse subgroups within the population. This approach ensures a comprehensive representation of the varied units within the population. Tourists who utilize spa services were categorized based on the size of the businesses they visited: small, medium, and large. A total of 372 samples were gathered, as detailed in Table 2.

Table 2. Classification of tourist samples based on the size of MSMEs they visit for spa
and Thai massage beauty services (Source: Office of Small and Medium Enterprises Promotion, 2022)

Tourists are categorized based on the size of the spa business they visit	Population	Number of samples	Percentage
1.Tourists who come to use the spa service in a small size (Micro)	3,122	198	61.00
2. Tourists who use the service of a small spa (Small)	2,462	156	38.00
3.Tourists who come to use the medium spa service (Medium)	283	18	1.00
Total	5,867	372	100

Table 3. The reliability of the research questions

Concept/Theory	Variable	Number of Questions	Cronbach's Alpha Coefficient
1. Metaverse Technology for VR Spa Glasses	1. Content	5	0.78
	2. Usability	5	0.70
	3. Design	5	0.83
	Total	15	0.77
2. Metaverse Application development for Marketing	1. Perception through sensory experiences (SENSE)	5	0.80
	2. Experiencing sensations through perception (FEEL)	4	0.70
	3. Cognitive Perception Experience (THINK).	4	0.81
	4. Experience perception through action (ACT).	3	0.81
	5. Experience Associated with Perception (RELATE)	3	0.70
	Total	15	0.78
3. Promoting health tourism based on the creative economy (BCG) in the country	1. Eco-friendly	4	0.83
	2.Fairness	4	0.70
	3. Safety	2	0.70
	4. Cleanliness	4	0.76
	5. Convenience	3	0.70
	Total	17	0.78

Research instrument

This study employed a survey questionnaire targeting 372 tourists who visited for spa, beauty, and Thai massage services. The questionnaire covered:1. Basic information about the tourists using the spa and beauty services.2. The role of Metaverse technology in enhancing the value of products and services in the spa industry.3. The application of Metaverse technology for marketing within the spa sector. 4.The promotion of health tourism grounded in the creative

economy. To develop the research instrument, the researcher conducted a literature review and examined relevant concepts and theories. This helped define the operational terms and structure of the variables under investigation. Subsequently, the researcher formulated questions based on the operational definitions.

The measurement tools and questionnaires were then developed, tested, and refined to align with the research objectives. The refined questionnaire was presented to an expert in health tourism standardization to validate the content accuracy. Following this, the researcher subjected the draft questionnaire to validity and reliability tests. The quality of the questionnaire, in terms of content validity, coverage, appropriateness, and language clarity, was assessed by five experts. The results indicated that the overall content validity of the questionnaire was 70% or higher, with a concordance range of 0.70–1.00, meeting the established criteria for content validity.

Data Collection

For data collection, the researcher initiated the process with a formal letter requesting assistance in completing the questionnaire. This was accompanied by the researcher's letter of recommendation, the questionnaire itself, and instructions for completing the online questionnaire via Google Forms. The link was sent to a sample group of tourists who utilized spa and Thai massage beauty services. The participants, totaling 372, were categorized by the size of the MSMEs they visited, in alignment with the criteria set by (Vasantha Raju and Harinarayana, 2016).

The research involved hosting a focus group discussion with a panel of entrepreneurs and executives dedicated to elevating health tourism standards. This group comprised five individuals. The discussion utilized a structured form that centered on the development of Metaverse technology to enhance product and service value. Topics covered included content design guidelines for VR glasses, application usability, video design, and the use of 360-degree virtual reality media, as well as the broader application of Metaverse technology in marketing.

Data Analysis

After data collection, the researcher employed statistical methods that aligned with the nature of the data to achieve the research objectives. The multiple regression analysis was used to study the relationships between the independent variables, namely: 1. The evolution of Metaverse technology for VR spa glasses and its impact on the development of Metaverse applications for marketing, and 2. The advancement of Metaverse applications for marketing and its influence on promoting health tourism grounded in the creative economy (BCG) within the country. This analysis aimed to understand the extent of the impact between the primary variables and the dependent variable.

RESULTS

The multiple regression analysis results indicate that the development of Metaverse technology for VR spa glasses (encompassing content, functionality, and design) has a significant impact on the evolution of Metaverse applications for marketing. This is evident when considering all factors (Sensory Experience, Sensational Experience, Thought Experience, Action Experience, Connection Experience). The analysis yielded an F-statistic value of 176.579 and an $R2$ value of 0. 590.The analysis suggests that the variation in the development of Metaverse applications for comprehensive marketing can be explained by 59.0%. The Adj $R2$ value of 0.587 further indicates that the combined independent variables account for predicting the development of Metaverse applications for the overall marketing effort by 58.7%.

Table 4. Results of Multiple Regression Analysis on the Impact of Metaverse Technology Development for VR Spa Glasses (covering content, usability, design) on the Overall Development of Metaverse Applications for VR Spa Marketing (encompassing sensory experience, sensation experience, thought experience, action experience, and association experience) **Statistically significant at the .01 level

Metaverse Technology for VR Spa Glasses	b	S.E.	Beta(β)	t	Sig.
Constant (a)	1.085	0.142		7.627	0.000**
Content	0.213	0.039	0.247	5.525	0.000**
Usability	0.191	0.040	0.240	4.792	0.000**
Design	0.342	0.042	0.389	8.058	0.000**
R =0.768	R^2 =0.590	Adj R^2=0.587	SEE =0.247	F =176.579	Sig.F =0.000

Table 5. Data Source on the Impact of Metaverse Applications for VR Spa Marketing

Datasource	Impact of Metaverse Applications for VR Spa Marketing				
	SENSE	FEEL	THINK	ACT	RELATE
Buhalis et al., (2023)	√		√		√
Ioannidis and Kontis, (2023)		√		√	
Novotny et al., (2015)	√		√		√
Szymczak, (2019)		√		√	
Wåhlström and Sun, (2022)	√		√		√

Furthermore, the standard error of the estimate was denoted by the Std. Error of the Estimate, which equaled 0.247. Upon examining each component, the following was observed:

1. The content dimension significantly influenced the comprehensive development of Metaverse marketing applications at a .01 significance level (β=0.247, p < .01), leading to the acceptance of the hypothesis.

2. Usability had a notable impact on the overall development of Metaverse applications for marketing at a .01 significance level (β=0.240, p < .01). Based on this analysis, the hypothesis is accepted.

3. Design played a significant role in the comprehensive development of Metaverse applications for marketing tasks at a .01 significance level (β=0.389, p < .01). This analysis confirms the acceptance of the hypothesis.

The predictive equation, when expressed in raw scores, is: Overall = 1.175 + 0.234 (Sensory Experience) + 0.113 (Feeling Experience) + 0.125 (Think Experience) + 0.121 (Action Experience) + 0.144 (Associative Experience).
When expressed in standardized scores, the equation becomes: Overall = 0.264 (Sensory Experience) + 0.138 (Feeling Experience) + 0.148 (Think Experience) + 0.156 (Action Experience) + 0.192 (Associative Perception).

CONCLUSION

Summary of the results from the multiple regression analysis: The development of Metaverse technology for VR spa glasses, encompassing factors such as content, usability, and design, significantly impacts the overall development of Metaverse applications for marketing. This includes dimensions like sensory experience, feeling experience, thought experience, action experience, and associative experience. Given an R^2 value of 0.590, developers of Metaverse technology for VR spa glasses should prioritize content. This content should emulate a clear and comprehensive 360-degree virtual reality video, offering a serene visual ambiance. The audio quality should be crisp, aligning seamlessly with the video's visuals and the depicted scenery, ensuring the virtual media remains captivating.

For instance, a significant portion of the sample group was drawn to virtual environments that highlighted natural tourist attractions, such as misty mountains, seas, forests, and islands. Additionally, the perception of experience through the senses was rated at the highest level by the participants. When examining individual elements, it was observed that the ambient sound associated with spa and Thai massage services evoked a sense of relaxation. The Metaverse application left a lasting impression with its content related to products and services in the spa and Thai massage sector. Furthermore, the application enabled users to vividly recall the distinct atmospheres of services offered in the spa and Thai massage industry. In alignment with the findings of (Beták et al., 2023), which explored the use of Virtual Reality technology to shape tourist perspectives consistent with behaviors at health tourism destinations, two main components were identified: 1. The application of Metaverse technology to enhance the value of products and services in the spa, beauty, and traditional Thai massage sectors. 2.The utilization of Metaverse technology for marketing in the spa, beauty, and traditional Thai massage industries. The study highlighted the growing acceptance and widespread use of virtual reality applications in today's tourism marketing, emphasizing the creation of niche images, such as those catering to health enthusiasts. It also emphasized consistent communication with diverse tourist groups. These findings underscore the significance of advancing virtual reality technology for future strategic planning in the tourism domain.

The study also revealed that a multiple regression analysis of the development of Metaverse applications for marketing—encompassing factors such as sensory experience, thought perception, action perception, and connection experience perception—had a significant impact on the overall drive of health tourism based on the creative economy (BCG) in the country. This impact covered aspects like environmental friendliness, fairness, safety, cleanliness, and convenience, with an R^2 value of 0.509. The analysis indicates that the independent variables collectively account for 50.9% of the variance in the drive for health tourism based on the creative economy (BCG) in the country.

This suggests that developers of Metaverse applications for marketing should emphasize ambient sound and atmosphere within spa service content to evoke relaxation in customers. Furthermore, the Metaverse application should enable users to vividly recall the distinct atmospheres of services in the spa and traditional Thai massage sectors. Consequently, entrepreneurs in the spa and beauty service industries should prioritize designing and constructing facilities that harmonize with the environment, adhere to sustainable construction principles, and ensure user convenience and safety. Such designs should also aim to reduce greenhouse gas emissions, manage service usage effectively, and implement action plans to preserve the environmental integrity of the service facility.

This also includes a focus on utilizing local raw materials and products for service provision or as souvenirs for tourists, encompassing items such as food, beverages, and handicrafts made from agricultural produce.

This aligns with the findings of the (Feng et al., 2023); They highlighted that Thailand possesses the potential to emerge as a global hub for medical and wellness tourism. A report from the (Suanpang et al., 2022); emphasized that Thailand's private hospital sector has primarily been propelled by government initiatives, which have been promoting the integration of technology to establish a Medical Hub since 2003. This has led to consistent growth in medical and health tourism. Consequently, Thailand's private hospitals have rapidly adapted and have earned global acclaim as a premier destination for medical tourism. The sector boasts strengths in service quality and treatment efficacy.

Services must prioritize convenience, cleanliness, safety, fairness, and environmental sustainability. Key performance indicators include the percentage of quality and repeat visitors, economic value derived from health tourism, the percentage of secondary cities that see an uptick in health tourism revenue, and the proportion of targeted entrepreneurs experiencing increased income from medical tourism. This is in line with the findings of the Capital Administration and Management Unit for Enhancement of National Competitiveness.

Wang and Yu (2023); explored the use of Virtual Reality in the spa and wellness industry. His research highlighted 'Esqapes Immersive Relaxation,' a virtual experience that emulates a day spa setting without the need for a physical massage table. This innovative concept was developed by Michah Jackson, a former game producer at Disney.

The program and spa environment he designed aim to provide individuals with a respite from their daily routines by "transporting them to another world without leaving their homes." By donning a VR headset powered by this technology, users can momentarily escape to a serene tropical island, feeling the sun's warmth, all while being pampered by a high-end massage chair.

Suggestions

Business owners and those involved in development should consider creating a Content Tows Matrix. This matrix will guide content development tailored to specific customer groups. For instance, it can help determine which content is best suited for specific services, such as spa treatments or Thai massages. Additionally, it's essential to identify the optimal timing for content deployment. Integrating supplementary videos into VR glasses and applications can enhance the user experience. One potential approach is to link to YouTube video clips that can be viewed seamlessly through VR glasses, ensuring clarity and offering avenues for further content enhancement.

A comprehensive guide and information update mechanism should be established for operators. This will empower entrepreneurs to independently update and manage their content. Additionally, the platform should be designed as a hub for future content expansion, aiding in the promotion of tourism across various provinces. This can also serve as a gateway to boost tourism in secondary cities. It's essential to further test the VR glasses and applications with international tourists to gather insights and feedback. This will facilitate the promotion of tourism to overseas markets. Incorporating additional languages, such as Chinese, will enhance the user experience and cater to a broader audience.

In summary, the Metaverse era represents the convergence of virtual world technologies that emulate real-world environments. This fusion is primarily characterized by avatars and is powered by key technologies such as Augmented Reality (AR), Virtual Reality (VR), and Extended Reality (XR). These technologies are pivotal in seamlessly blending real-world activities with virtual experiences. Adopting a Virtual Reality marketing approach for health and beauty businesses can offer customers an immersive experience that feels authentic. This, when integrated with contemporary digital marketing strategies, can enhance search engine performance. The synergy of social media marketing, pay-per-click advertising, and a focus on content marketing ensures a dynamic web presence. Regular website updates, email marketing campaigns, and engaging videos further enhance direct communication with customers. This comprehensive strategy is rounded off with online PR and attraction marketing techniques. Even as COVID-19 transitions to an endemic phase, adaptations by health and beauty entrepreneurs will persist. While there's a shift towards a more normalized way of life, digital marketing will consistently stand as an effective strategy, targeting the most suitable consumer groups. It will remain a potent tool for beauty and health business entrepreneurs both now and in the foreseeable future.

For future research, the following steps should be considered:

1. Comparative Analysis: Investigate and contrast the use of Metaverse technology in the health tourism sectors of various countries to discern emerging trends and notable topics.

2. Opinion Poll: Gather feedback from both travelers and service providers in the health tourism sector about the integration of Metaverse technology.

3. Prototype Creation: Design and evaluate Metaverse world prototypes tailored for health tourism to assess their functionality and user experience.

4. Safety Protocols: Research and establish security protocols for the deployment of Metaverse technology within health tourism.

5. Impact Assessment: Analyze the economic, societal, and environmental repercussions of incorporating Metaverse technology into health tourism.

6. Community Building: Foster connections between service providers, developers, and end-users to encourage ongoing growth and innovation in the field.

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