

The Role of Generative AI in Enhancing Social Media Engagement: A Comparative Study with Traditional Content Creation

Muhammad Rafli Putra Prasetiadi, Indrawati

School of Economics and Business, Telkom University, Bandung, Indonesia
Email: rafliprasetiadi@student.telkomuniversity.ac.id

Digitalization has transformed Indonesia's MSME marketing landscape, with the digital economy projected to reach \$146 billion by 2025. Despite challenges in digital literacy and AI adoption, MSMEs must leverage Generative AI to enhance content marketing, particularly on platforms like Instagram. This study evaluates the effectiveness of AI-generated content versus traditional methods for Najma Tours and Travel's Instagram engagement, aiming to improve MSME digital strategies. This study employs evaluative and qualitative research through an experimental approach, comparing AI-generated and traditional content over 30 days to assess their effectiveness on Instagram engagement for Najma Tours and Travel. The results indicate that Generative AI excels in creating high-quality visual content and captions, consistently outperforming traditional methods in likes and shares. This demonstrates its potential in engaging audiences through interactions like liking and sharing. However, AI-generated content struggles to attract comments, where traditional methods perform better, suggesting that while AI enhances certain engagement aspects, traditional methods still excel in generating deeper interactions. These findings offer valuable insights for digital marketers in optimizing strategies and highlight the potential of integrating AI with traditional methods for more effective social media campaigns.

Keywords: Artificial Intelligence, Content Creation, Social Media Engagement, Social Media Marketing, Traditional Methods.

1. Introduction

Digitalization has brought significant changes to the marketing landscape, particularly for Micro, Small, and Medium Enterprises (MSMEs) in Indonesia. The rapid growth of the

digital economy, as reported by Google Temasek & Bain, indicates a 49% increase in the valuation of Indonesia's digital economy in 2021, reaching US\$70 billion, with a projected value of US\$146 billion by 2025. E-commerce has been the primary driver of this growth, expanding by 52%, along with transportation and food delivery services, which grew by 36% in the same year. Indonesia is now one of the largest digital economies in Southeast Asia, contributing 6% to the country's GDP, a figure expected to rise as digital technology continues to advance in the region [1].

MSMEs play a crucial role in Indonesia's economy, contributing nearly 61% to the country's Gross Domestic Product (GDP) and providing employment for a large portion of the workforce. The MSME Law delineates three distinct business units, namely micro, small, and medium enterprises. It can thus be posited that MSMEs are productive economic businesses owned by individuals and registered as individual business entities [2].

However, with the advent of the digital revolution, MSMEs face significant challenges, including digital literacy, technological innovation, effectiveness, and legal compliance. The utilisation of technology capabilities can facilitate the exploitation of existing market opportunities and the investigation of new opportunities to address the challenges posed by emerging markets [3]. Small and medium-sized enterprises (SMEs) must develop business strategies to navigate competitive challenges, and the efficacy of these strategies is contingent upon their performance [4]. These challenges must be addressed promptly to ensure that MSMEs can compete globally. Digital literacy skills are essential for MSMEs to adapt to the digital ecosystem, which has become an integral part of the Fourth Industrial Revolution. Although the adoption of technology among MSMEs is increasing, digital skills and understanding remain a major challenge [1].

The digital revolution has also transformed consumer interactions with brands through online platforms. One of the strategies in digital marketing is by using social media [5] particularly Instagram, has become an integral part of content marketing strategies. With 139 million social media users in Indonesia as of January 2024, equivalent to 49.9% of the total national population, the data reinforces that social media, especially Instagram, has become a prevalent digital marketing platform used by entrepreneurs to promote their businesses [6]. In light of this shift, it is evident that effective social media marketing is a crucial endeavor for businesses. This entails the utilization of diverse digital assets, including written content, videos, graphics, images, and posts on institutional social media accounts [7]. In this study, the focus is on social media platforms such as Instagram.

The rapid advancements in Generative Artificial Intelligence (AI) technologies, such as GPT and DALL·E, offer new solutions in digital content creation. Generative AI enables MSMEs to produce content more efficiently and at a lower cost compared to traditional methods. However, the adoption of Generative AI in marketing content creation still faces challenges, particularly regarding consumer perceptions of AI-generated content and the expected quality of outcomes. Despite these challenges, Generative AI has the potential to disrupt the marketing industry by generating significant economic value, especially in marketing and sales [8].

In the era of global competition, the ability to create content quickly, in various formats for different platforms, and to disseminate it through multiple channels, is crucial for success in

digital marketing strategies. The current content tsunami demands that brands innovate in creating unique and engaging text, images, and videos to capture consumer attention. Therefore, it is essential for MSMEs to understand and leverage new technologies such as Generative AI in their efforts to enhance the effectiveness of their digital marketing.

Based on this background, this study aims to evaluate the effectiveness of engagement in Digital Marketing content creation using Generative AI compared to content created through traditional methods on Instagram Najma Tours and Travel. This research is expected to contribute to the development of more effective digital marketing strategies for MSMEs in Indonesia.

2. Literature Review

Social Media Engagement

Social media engagement can be defined as the level of digital consumer involvement, which encompasses a range of active social media behaviors, including viewing brand content, commenting on brand pages, and creating brand content [9]. Engagement in social media marketing refers to the level of interaction between a brand or individual and their audience on platforms such as YouTube, Facebook, Twitter, and Instagram [10]. This encompasses a range of activities, including liking, commenting, sharing, direct messaging, and mentioning, as well as user-generated content and collaboration with influencers.

Among social media platforms, Instagram has gained tremendous acceptance due to its ability to utilize visual content [11] and naturally corresponds to key factors in the international marketing dimension [12], especially brand communication and customer engagement. The conceptualization of social media engagement in this study comes from the operationalization of consumer engagement [13], which includes consumer actions such as Like, Comment, and Share content on Instagram.

Traditional Methods Content Creation

Content creation is a process that involves the creation, management, and presentation of multimedia content, which is often represented in various forms, including traditional documents, hypertext, and hypermedia [14]. The creation of content should be approached in a manner that is distinctive and reflective of the company's business identity. The utilisation of diverse tools during the content creation process is a viable approach. The creation of content can facilitate the development of credibility for companies, while simultaneously enabling consumers to cultivate relationships and loyalty, and enhancing search engine optimisation efforts [15]. In the context of traditional content creation methods, this study will employ the Canva application, which is relatively straightforward to operate.

Generative AI Content Creation

The Oxford Dictionary offers the following definition of AI: "the theory and development of computer systems capable of performing tasks that would normally require human intelligence." Another definition of AI, as put forth by Andrew Ng, the head of AI at the Chinese social media company Baidu, posits that any cognitive process that takes a human

Nanotechnology Perceptions Vol. 20 No.4 (2024)

less than a second to process is a potential candidate for AI [16].

The term of "AI" defined as intelligence demonstrated by machines[17]. Another study define AI as intelligence that employs sensors to comprehend and effectors to respond to the environment [18]. Consequently, USA Today and The Washington Post utilize AI to facilitate news production and maintain currency by incorporating new information over time. Consequently, AI has become a valuable tool in the creation of digital marketing content, particularly in the context of social media [19]. In this research, generative AI content creation will be done using Dall E, which is part of ChatGPT, a chatbot that can generate original text and DALL-E can create original images [20].

3. Research Methodology

The type of research conducted in this study is Evaluative research. In the context of this research, the evaluation focused on determining the effectiveness of Najma Tours And Travel's Instagram content engagement by comparing two content creation methods, namely generative ai and traditional methods. Evaluative research can help improve knowledge and decision-making and result in practical implementation [21].

This study adopts an experimental approach, which implies that the object is treated by creating 30 pieces of content conducted over 30 days using two different methods, and the results are directly observed to isolate the specific effects of each method on content engagement..

Qualitative research focuses on data that cannot be directly quantified, but is analyzed in the form of in-depth descriptions. This approach was chosen for its ability to explore subjective and contextual aspects that cannot be represented by numbers [22]. In this study, the approach is carried out through direct observation by creating content and reviewing the results of engagement insights from each method on Najma Tours and Travel's Instagram content.

4. Result and Discussion

Content Creation Using Generative AI

This section will elaborate on the results of the content creation experiment conducted on the Instagram account @najmatoursandtravel.id. The experiment involved creating 30 pieces of content over 30 days using Generative AI to produce images, accompanied by the AI's utilization to craft captions that would complement the images created as Instagram content. Below are some examples detailing the content creation process, including the prompts used to generate images and the corresponding captions.

Table 1. Image Prompt and Caption for Najma Tours and Travel Instagram Content

Date	Image Prompt	Instagram Caption Prompt	Result for Caption
July 5, 2024	Prompt 1: A photograph of a person performing Tawaf in a square ratio	Create an Instagram caption with an advertisement angle that solves a problem, explaining the advantages of Najma Tours and	✦ It's time to eliminate doubt and choose a trustworthy Umrah journey with Najma Tours and Travel! ✦

	with a realistic style. Prompt 2: Create it from the perspective of the person performing Tawaf. Prompt 3: The point of view (POV) is from the front of the Kaaba Prompt 4: The person is walking beside the Kaaba.	Travel, including: ☒ Registered with the Ministry of Religious Affairs of the Republic of Indonesia with Umrah License No. 825 of 2017 (PPIU License Decree No. 548 of 2020) ☒ Main focus: providing the best service that ensures pilgrims' satisfaction ☒ Available packages with various options to suit pilgrims' time, budget, and needs ☒ Experienced and trustworthy ustadz or tour leaders who provide the best service for Umrah pilgrims ☒ Umrah manasik sessions for pilgrims before departure, guided until pilgrims understand ☒ Muthowif are Indonesian citizens with official residency permits in Saudi Arabia ☒ Airlines used are Etihad, Oman Air, or equivalent, providing the best service and comfort ☒ The LA in Saudi Arabia is officially licensed, and the muasassah is officially licensed. Provide a headline with an attractive hook.	✳️ Our Advantages : ☒ Registered with the Ministry of Religious Affairs of the Republic of Indonesia with Umrah License No. 825 of 2017 (PPIU License Decree No. 548 of 2020) ☒ Main focus: providing the best service that ensures pilgrims' satisfaction ☒ Available packages with various options to suit pilgrims' time, budget, and needs ☒ Experienced and trustworthy ustadz or tour leaders who provide the best service for Umrah pilgrims ☒ Umrah manasik sessions for pilgrims before departure, guided until pilgrims understand ☒ Muthowif are Indonesian citizens with official residency permits in Saudi Arabia ☒ Airlines used are Etihad, Oman Air, or equivalent, providing the best service and comfort ☒ The LA in Saudi Arabia is officially licensed, and the muasassah is officially licensed. Don't wait any longer! Fulfill your Umrah with peace and comfort with Najma Tours and Travel. Click the link in bio for more information and booking. 🌐 ✈️ 🏠 #NajmaTours #ComfortableUmrah #HalalTravel #PeacefulWorship #TrustedUmrah
July 10th, 2024	A photo of male and female pilgrims at Hajar Aswad during Umrah, dressed in white Ihram garments, in a square ratio.	Create an Instagram caption with an advertisement angle that solves a problem, explaining that Najma Tours and Travel Umrah pilgrims need to bring: ☒ 2 Units of Luggage	✳️ Ready for Umrah with Najma Tours and Travel! ✳️ Still unsure of what to bring for Umrah? Don't worry, we have the solution! With Najma Tours and

		☒ Ihram/Bergo/Headscarf ☒ Batik ☒ Passport Bag ☒ Shoe Bag/Drawstring Bag ☒ Siskopatuh ID Card ☒ Scarf ☒ Prayer Book	Travel, your pilgrimage will be more comfortable and organized. Here's a list of essential items to bring: ☒ 2 Units of Luggage - for your belongings ☒ Ihram/Bergo/Headscarf - for fulfilling your worship in reverence. ☒ Batik - for additional needs ☒ Passport Bag - to keep important documents safe ☒ Shoe Bag/Drawstring Bag - to ensure your shoes don't get lost ☒ Siskopatuh ID Card - your identity during the journey ☒ Scarf for added comfort ☒ Prayer Book - your worship guide By preparing all these, you can focus on worship without worry. Let's plan your Umrah with us and experience the best service from Najma Tours and Travel! #ComfortableUmrah #NajmaTours #TravelWithNajma #Umrah #Hajj #HajjWorship #TravelTips
July 13th, 2024	An illustration of an online Umrah manasik session with a Zoom screen. The main window shows an ustadz guide presenting a PowerPoint, and several smaller windows show pilgrims participating from their homes. The ustadz uses visual aids for explanation. The pilgrims appear attentive, some taking notes and others practicing the instructions. The overall theme is green and white, with the Najma Tours and Travel logo in the corner, with realistic	Prompt 1: I'm working on a project as an Instagram creator at an umrah agency called Najma Tours and Travel. Prompt 2: Please review the FAQ to learn more. Prompt 3: (FAQ_UmrohBarengNajma2024.docx) Here is the file. Prompt 4: Next, I will create content using two methods: dall-e and Canva. Prompt 5: Based on these two methods, please provide me with a content idea, including the type of	🔍 Still Confused About Umrah Procedures? Najma Tours and Travel Has the Solution! 🌐 Are you worried about not fully understanding the Umrah procedures? 🤔 Don't worry! Najma Tours and Travel is ready to help with our comprehensive Umrah manasik sessions, available online and offline. 💎 Why Manasik With Us? ☒ Guided by experienced ustadz ☒ Hands-on practice sessions with full guidance ☒ Complete material for all stages of Umrah ☒ Accessible from home via Zoom With over 10 years of experience, we ensure that every pilgrim

	style and square ratio	content, which should be images only. Prompt 6: Give me no 4 (Manasik Umrah Image) in more detail Prompt 7: Create an engaging Instagram caption that incorporates a problem-solving advertising approach.	understands the entire Umrah worship process well and correctly. 📖 ✨ With Najma Tours and Travel, your worship journey will feel more comfortable and peaceful. 💖 Contact us now for more information and manasik session schedules! 📱 #NajmaToursAndTravel #UmrahManasik #Umrah2024 #ComfortableUmrah #PeacefulWorship #UmrahTravel #UmrahSolution #UmrahMumtaz #OnlineManasik #OfflineManasik
July 28th, 2024	Create a realistic illustration of Najma Tours and Travel Umrah pilgrims visiting Masjid Qiblatain, in a square ratio.	Create a caption for the following image by providing contact information available in the Instagram profile, with a hope advertisement angle and using emojis to better illustrate the caption.	🌟 The beauty of worship moments at Masjid Qiblatain with Najma Tours and Travel pilgrims! 🕌 ✨ Every step you take in the holy land is a realization of sincere prayers and hopes. With Najma Tours and Travel, we are ready to accompany your spiritual journey with full comfort and togetherness. 💖 🤝 Feel free to contact us through the contact available in our Instagram profile for more information about Umrah packages and registration 📞 #NajmaToursAndTravel #UmrahWithNajma #MasjidQiblatain #Madinah #UmrahWorship #Umrah2024 #UmrahTravel #HopeAndPrayers

Table 1 presents examples of how content was created by providing prompts for images and Instagram captions over a 30-day period on the Najma Tours and Travel Instagram account as part of an experiment using Generative AI. This table includes information on the content creation date, the prompts used to generate images and Instagram captions, as well as the final captions produced by the AI. The content created includes images of pilgrims at the Ka'bah and the spiritual atmosphere in Masjid Nabawi.



Figure 1. Example of Images Generated by Generative AI for Instagram @najmatoursandtravel.id

The deployment of generative AI in this experiment has substantiated its efficacy as a method for the generation of both relevant and compelling images and captions. This assertion is corroborated by the example depicted in Figure 1, which illustrates a high-quality image that is perfectly aligned with the provided description, thereby offering visuals that effectively convey the intended message. Moreover, Generative AI has demonstrated its capacity to generate Instagram captions that not only engage the audience but also employ a persuasive, informative, and emotionally resonant style. This assertion is further substantiated by the engagement metrics obtained from the insights for each piece of content, which are detailed as follows:

Table 2. The Results of a Generative AI Content Experiment Conducted by Najma Tours and Travel.

Date	Like	Comment	Share
July 2nd, 2024	2	0	0
July 3rd, 2024	7	0	0
July 4th, 2024	6	1	1
July 5th, 2024	225	1	2
July 6th, 2024	114	0	0
July 7th, 2024	391	0	0
July 8th, 2024	27	0	0
July 9th, 2024	251	0	0
July 10th, 2024	814	0	0
July 11th, 2024	782	0	0
July 12th, 2024	315	0	1
July 13th, 2024	30	0	8
July 14th, 2024	836	0	0
July 15th, 2024	187	0	0
July 17th, 2024	20	0	0
July 18th, 2024	318	0	0
July 19th, 2024	255	0	0
July 20th, 2024	773	0	0
July 21st, 2024	63	0	0
July 22nd, 2024	641	0	0
July 23rd, 2024	159	0	0
July 24th , 2024	459	0	0
July 25th, 2024	227	0	0
July 26th, 2024	332	0	0
July 27th, 2024	537	0	0

July 28th, 2024	652	0	1
July 29th, 2024	614	0	0
July 30th, 2024	345	0	0
August 1st, 2024	772	0	0
August 2nd, 2024	107	0	0
Total	10,261	2	13

Table 2 presents data on audience engagement with Najma Tours and Travel's Instagram content over a 30 day period, including the number of likes, comments, and shares. At the outset, the number of interactions was relatively low, with only a few instances of likes, a similar number of comments, and a similarly low number of shares. Notable peaks in engagement were observed on specific days, including 225 likes on July 5, 2024, 391 likes on July 7, 2024, and 814 and 782 likes on July 10, and 11, 2024. While some days exhibited discernible peaks in the number of likes, the overall volume of interactions in the form of comments and shares remained relatively modest throughout the observation period.

The data indicates that the utilization of Generative AI in content creation has been efficacious in capturing audience attention, particularly in terms of the number of likes. The variation in the number of likes from day to day suggests that certain content is more effective than others in attracting attention, aligning with the observations of Swani et al. (2017), who posited that when audiences provide likes, it can reflect attitudes and recognition of the content, page, and or content sender.

Content Creation Using Traditional Method

This section will elaborate on the results of the content creation experiment conducted on the Instagram account @najmatoursandtravel.id. Experiments using traditional methods by utilizing Canva on the @ najmatoursandtravel.id Instagram account were also carried out by creating 30 contents, for 30 days. Below are some examples detailing the content creation process, with details for the creation process which includes content concepts, and captions are as follow.

Table 3. Content Concept and Caption Outcome for Instagram Najma Tours and Travel

Date	Concept of The Content	Result for Caption
July 11th, 2024	• The image depicts the atmosphere surrounding the Kaaba from the vantage point of an individual engaged in prayer. The white and orange text conveys a sense of warmth and optimism. • The image encourages those considering Umrah to approach the journey with love and to view it as a significant spiritual undertaking. The accompanying text elucidates the profound significance of Umrah, emphasizing that it is not merely a financial undertaking but also a spiritual one, encompassing the soul and the realm of eternity.	Experience the Virtues of Umrah with Najma Tours and Travel 🌟 💎 Common Challenges: 1. Uncertain Departure - Umrah often encounters issues with uncertain departure schedules. 2. High Costs - Many travel agencies offer Umrah packages with exceedingly high costs. 3. Lack of Comfort - Many individuals face discomfort during their Umrah journey. 🌟 Solutions from Najma Tours and Travel: 1. Guaranteed Departure Schedule - With Najma Tours and Travel, you do not need to worry about uncertain departure schedules. We ensure your departure is on time.

		2. Affordable Costs - We offer affordable Umrah packages, starting with a down payment of only IDR 3,000,000 and the first installment of IDR 7,000,000. 3. Maximum Comfort - We collaborate with reputable airlines such as Etihad and Oman Air to ensure your comfort throughout the journey. ✈ Virtues of Umrah: • Cleansing of Sins - Performing Umrah is one of the means to cleanse sins and attain forgiveness from Allah. • Enhancing Faith - This spiritual journey will enhance your faith and devotion. • Prayers Answered - The prayers made during Umrah have a high likelihood of being answered by Allah. Join Najma Tours and Travel and experience a comfortable, safe, and blessed Umrah journey. 🌍 ✈ "Umrah is easier, more comfortable, and more affordable with Najma Tours and Travel!" #NajmaToursandTravel #UmrahMumtaz #Umrah2024 #HajjAndUmrahTravel #ComfortableWorship #UmrahSolution #IslamicCompanion #UmrahFriends
July 18th, 2024	• The image shows the atmosphere at the Prophet's Mosque with a focus on the open Qur'an in the foreground. The beige and light brown colors give a calm and peaceful impression. • Invites the audience to realize their prayers and hopes through a spiritual journey with Najma Tours & Travel. This message emphasizes the importance of meaningful and spiritual worship.	✨ Aspirations for Umrah with Najma Tours & Travel! ✨ Do you dream of performing Umrah in an environment filled with peace and comfort? Najma Tours & Travel is here to fulfill your aspirations! ✨ Join us and experience an unforgettable Umrah journey with a community that is warm and guided by experienced scholars. From the preparation of the rituals to the execution of Umrah, we provide everything for your comfort. 🏠 🕒 Let us help you realize your aspiration to worship in the Holy Land with Najma! Contact us now through the information provided on our Instagram profile for further details and registration. 📱 ✨ #UmrahWithNajma #NajmaToursandTravel #Umrah2024 #UmrahAspirations #UmrahMumtaz #RegularUmrah #ComfortableUmrah
July 28th, 2024	• Displaying visuals of the Kaaba at the Grand Mosque with Umrah package information.	✨ Let's Realize Your Dream of Visiting the Holy Land with Najma Tours & Travel

	Conveying messages about the exclusivity of the Mumtaz 2024 Umrah trip, prices, facilities, departure schedules to the mascpai used to emphasize the comfort and blessings that will be felt by pilgrims.	✦✦ ✦✦ With the 12-day Umrah Package from Najma Tours & Travel, you can fulfill your sacred dream of performing Umrah in comfort and reverence. Join thousands of other pilgrims to receive blessings in the Holy Land. 🕌 ✦✦ ◇ Departure Schedule: - September 18th-29th ,2024 - November 13th-24th, 2024 - January 2025 ◇ All-Inclusive Price includes round-trip tickets and various other facilities. The down payment is only IDR 15 million for the purchase of FIT Group tickets. ☎ Contact Us: 0813 2192 2742 #UmrahMumtaz #NajmaToursTravel #UmrahWorship #SpiritualJourney #SacredAspirations #GroupUmrah #AffordableUmrah #Umrah2024
August 1st, 2024	- Showing a picture of the Kaaba with the background of the worship atmosphere at the Grand Mosque. - This post promotes the Mumtaz 2024 umrah package organized by Najma Tours & Travel. The concept is to provide complete information about Umrah packages that are safe and comfortable at affordable prices. This post highlights the advantages of the umrah services provided, such as complete facilities and solemn worship guidance, and invites the audience to register immediately through the contact information provided.	✦ Fulfilling Sacred Aspirations with Najma Tours & Travel ✦ ✦✦ Concerned about the cost and comfort of your Umrah journey? We have the solution! With our affordable 12-day All-Inclusive Umrah package, complete with all necessary facilities, you can focus on your worship without any worries. 🕌 ◇ Departure Schedule: - September 18th-29th ,2024 - November 13th-24th, 2024 - January 2025 ◇ All-Inclusive Price includes round-trip tickets and various other amenities. The down payment is only IDR 15 million for the purchase of FIT Group tickets. ✦✦ Concerned about the cost and comfort of your Umrah journey? We have the solution! With our affordable All-Inclusive package and complete facilities, you can focus on your worship without any worries. 🕌 ✦ Your sacred aspiration for Umrah is now closer than ever. With Najma Tours & Travel, enjoy a spiritual journey filled with blessings and ease. Don't wait any longer, click our contact link in the bio 🕌 ✦✦ #UmrahMumtaz #NajmaToursTravel #WorshipSolution #SacredAspiration #SpiritualJourney #Umrah2024 #AffordableUmrah

Table 3 provides a comprehensive overview of the content concepts and caption outcomes applied to the Instagram account of Najma Tours and Travel using traditional methods. This method utilizes the Canva application to create attractive and relevant images as well as the use of informative and persuasive captions. The main concept of the various content created is to promote the Umrah packages offered by Najma Tours and Travel, emphasizing aspects such as spiritual experience, comfort, and trust.



Figure 2. Example of Images Generated by Traditional Method for Instagram @najmatoursandtravel.id

The process of content creation entails the formulation of a conceptual framework, which involves the identification of the overarching theme and the key message to be conveyed in each individual piece of content. To illustrate, the content presented on the initial day employs a conceptual framework that encourages the audience to participate in the Umrah package. This is achieved through the use of an image of the Ka'bah and a depiction of the crowd of pilgrims engaged in the ritual of tawaf. Furthermore, this method employs visual elements to reinforce the message conveyed in each content piece.

Canva was selected for its user-friendly interface and intuitive design tools, which enable non-expert users to create sophisticated graphic designs. The image designs included in the content incorporate a variety of elements, such as relevant backgrounds (e.g., the Ka'bah, Masjid Nabawi, and Jabal Rahmah), promotional text, icons, and supplementary decorations that serve to reinforce the visual message. The selected colors, such as the dominant blue with accent colors, convey a sense of calm and professionalism.

The captions are written in a persuasive and informative style, providing essential details about the Umrah package, including prices, facilities, departure schedules, and the benefits prospective pilgrims will receive. Additionally, they include direct calls to action, such as contacting the provided number for more information or making a reservation. The captions serve a dual purpose: to provide information and to build an emotional connection with the audience.

Table 4. The Results of a Traditional Method Content Experiment Conducted by Najma Tours and Travel

Date	Like	Comment	Share
July 2nd, 2024	5	1	0
July 3rd, 2024	2	0	0
July 4th, 2024	3	0	0
July 5th, 2024	17	0	0
July 6th, 2024	30	0	0

July 7th, 2024	117	0	0
July 8th, 2024	42	0	0
July 9th, 2024	25	0	0
July 10th, 2024	26	0	0
July 11th, 2024	201	0	0
July 12th, 2024	136	0	0
July 13th, 2024	46	0	0
July 14th, 2024	55	0	0
July 15th, 2024	38	1	0
July 17th, 2024	108	0	0
July 18th, 2024	180	0	0
July 19th, 2024	38	0	0
July 20th, 2024	67	0	0
July 21st, 2024	88	0	0
July 22nd, 2024	72	0	0
July 23rd, 2024	64	0	0
July 24th , 2024	60	0	0
July 25th, 2024	59	0	0
July 26th, 2024	108	0	0
July 27th, 2024	109	0	0
July 28th, 2024	190	2	0
July 29th, 2024	202	0	0
July 30th, 2024	92	0	0
August 1st, 2024	160	0	0
August 2nd, 2024	128	0	0
Total	2,468	4	0

The process of content creation entails the formulation of a conceptual framework, which involves the identification of the overarching theme and the key message to be conveyed in each individual piece of content. To illustrate, the content presented on the initial day employs a conceptual framework that encourages the audience to participate in the Umrah package. This is achieved through the use of an image of the Ka'bah and a depiction of the crowd of pilgrims engaged in the ritual of tawaf. Furthermore, this method employs visual elements to reinforce the message conveyed in each content piece

Table 4 illustrates the engagement outcomes of the traditional method content experiment conducted by Najma Tours and Travel over a 30-day period. The level of engagement was gauged by the number of likes, comments, and shares on each daily content post uploaded to the @najmatoursandtravel.id Instagram account.

The number of likes obtained by each post exhibited considerable variability throughout the experimental period. At the outset of the experiment, the number of likes received was relatively low, with an average of approximately 5 – 30 likes per day. However, there was a notable surge in engagement on the subsequent days, exemplified by 201 likes on July 11th, 2024 and 202 likes on July 27th, 2024. The number of comments received on each post was minimal, with only four comments recorded throughout the experimental period. This indicates that although the content was successful in garnering likes, it failed to elicit a substantial level of engagement in the form of comments. During the experimental period, no instances of sharing were documented for any posts. This suggests that while the content was appealing to audience members, it did not elicit a sufficient level of interest or relevance to motivate them to disseminate the content to their networks. The absence of sharing may be

Nanotechnology Perceptions Vol. 20 No.4 (2024)

indicative of the content's inability to achieve a high level of virality or relevance, which are crucial factors in encouraging audience sharing.

Comparison of Content Creation Using Generative AI and Traditional Methods

In the previous section, we have presented the engagement results of content created with two methods, namely Generative AI and the traditional method, as measured by likes, comments, and shares. In this section, a comparison of the two methods will be explained together through a graph, which provides a clearer picture of each method's contribution to engagement. This comparison is important to provide a deeper insight into the effectiveness of each method.

Table 5. Comparison of Engagement on the @najmatoursandtravel.id

Day	Konten	Like	Comment	Share
1	AI	2	0	0
	Tradisional	5	1	0
2	AI	7	0	0
	Tradisional	2	0	0
3	AI	6	1	1
	Tradisional	3	0	0
4	AI	225	1	2
	Tradisional	17	0	0
5	AI	114	0	0
	Tradisional	30	0	0
6	AI	391	0	0
	Tradisional	117	0	0
7	AI	27	0	0
	Tradisional	42	0	0
8	AI	251	0	0
	Tradisional	25	0	0
9	AI	814	0	0
	Tradisional	26	0	0
10	AI	782	0	0
	Tradisional	201	0	0
11	AI	315	0	1
	Tradisional	136	0	0
12	AI	30	0	8
	Tradisional	46	0	0
13	AI	836	0	0
	Tradisional	55	0	0
14	AI	187	0	0
	Tradisional	38	1	0
15	AI	20	0	0
	Tradisional	108	0	0
16	AI	318	0	0
	Tradisional	180	0	0
17	AI	255	0	0
	Tradisional	38	0	0
18	AI	773	0	0
	Tradisional	67	0	0
19	AI	63	0	0
	Tradisional	88	0	0
20	AI	641	0	0

	Tradisional	72	0	0
21	AI	159	0	0
	Tradisional	64	0	0
22	AI	459	0	0
	Tradisional	60	0	0
23	AI	227	0	0
	Tradisional	59	0	0
24	AI	332	0	0
	Tradisional	108	0	0
25	AI	537	0	0
	Tradisional	109	0	0
26	AI	652	0	1
	Tradisional	190	2	0
27	AI	614	0	0
	Tradisional	202	0	0
28	AI	345	0	0
	Tradisional	92	0	0
29	AI	772	0	0
	Tradisional	160	0	0
30	AI	107	0	0
	Tradisional	128	0	0
Total for Generative AI		10,261	2	13
Total fot Metode Tradisional		2,468	4	0

In table 5, shows there is a significant difference in engagement on the Najma Tours and Travel Instagram account between content created with Generative AI and traditional methods. The like matrix shows a high difference of 7,793, supporting the superiority of Generative AI. The same goes for the share matrix, although the difference is not as high as the like. However, for the comment matrix, the traditional method is still superior, albeit with a low difference.

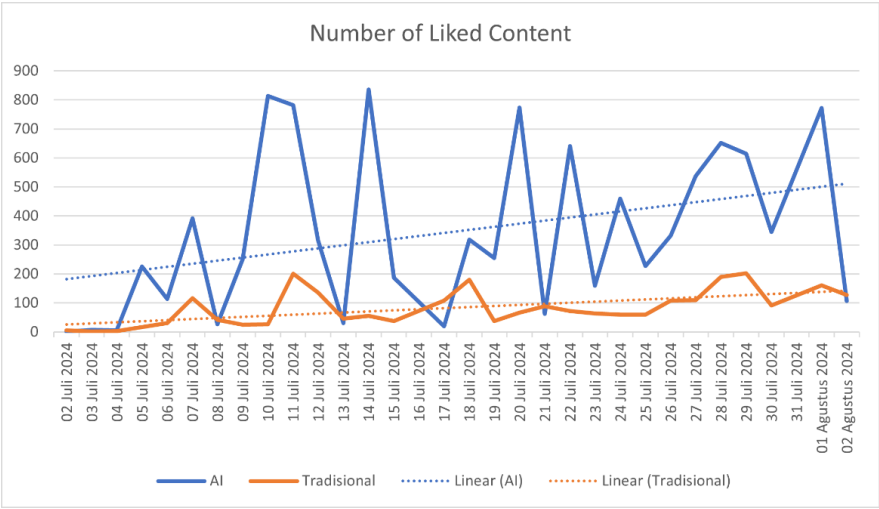


Figure 3. Najma Tours and Travel Liked Content Comparison Chart

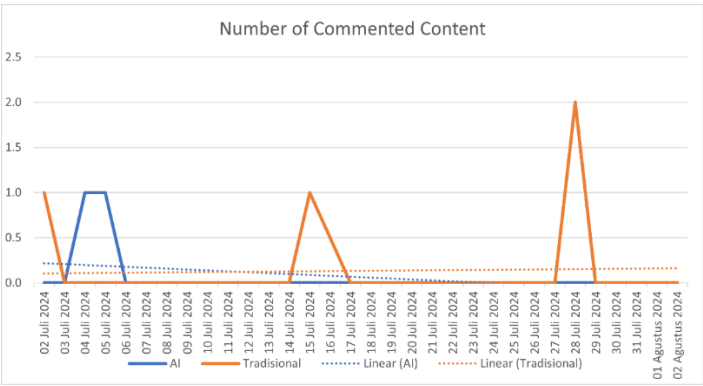


Figure 4. Najma Tours and Travel Commented Content Comparison Chart

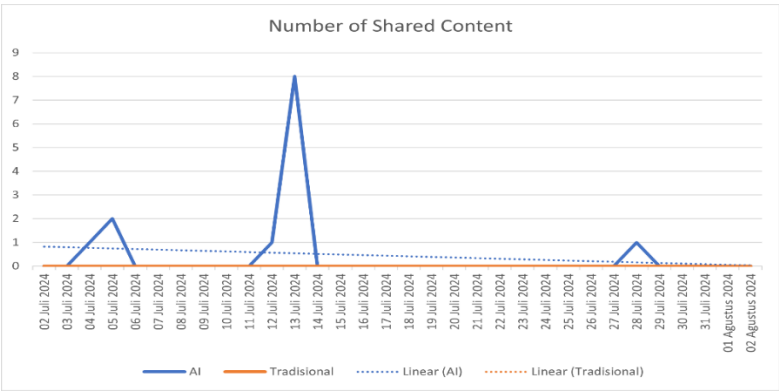


Figure 5. Najma Tours and Travel Shared Content Comparison Chart

Figure 3 presents a comparative analysis of the number of likes generated by the AI method and the traditional method on Najma Tours and Travel's Instagram account from July 2nd to August 2nd, 2024. The AI method demonstrated a higher number of likes, characterized by significant fluctuations, with a peak of approximately 800 likes on July 10th, 2024. The linear trend line indicates a steady increase for the AI method, highlighting its substantial potential in capturing user attention. In contrast, the traditional method exhibited a more stable number of likes, reaching its highest point with 202 likes on July 27th, 2024. However, the rate of increase for the traditional method was not as rapid as that of the AI method.

Figures 4 and 5 provide an examination of the number of comments and the frequency of content sharing between the two methods. The AI method displayed low effectiveness in generating comments, marked by insignificant fluctuations, while the traditional method achieved the highest comment peak on July 28th, 2024. These findings indicate that both methods exhibit limited performance in terms of generating comments. Conversely, in the context of content sharing, the AI method demonstrated notable spikes, particularly on July 13th, 2024, with eight shares, whereas the traditional method did not record any content shares during the observed period. This suggests that the AI method is more effective in prompting users to share content compared to the traditional method.

5. Discussion

The research conducted using a qualitative approach to analyze the use of Generative AI in managing the Instagram account of Najma Tours and Travel revealed significant findings in comparing the effectiveness of Generative AI and traditional methods in enhancing engagement. The analysis of the like matrix highlighted a striking difference, where content generated using Generative AI garnered 7,793 more likes than content produced through traditional methods. This demonstrates that Generative AI has a substantial advantage in attracting user attention and interaction through likes. However, despite the success of AI-generated content in securing more likes, the number of comments received on such content was minimal, with insignificant fluctuations. In contrast, the traditional method exhibited better performance in terms of comments, reaching its highest peak on July 28, 2024. Nevertheless, the linear trend for both methods remained nearly flat, indicating that the increase in the number of comments for both methods was very limited.

Furthermore, the analysis of the number of shares indicated that content generated by Generative AI experienced significant spikes, particularly on July 13, 2024, with a peak of 8 shares. This suggests that Generative AI is not only effective in attracting user attention through likes but also in encouraging users to share content, which is a deeper and more participatory indicator of engagement. Conversely, the traditional method did not exhibit any content-sharing activity throughout the experiment period, indicating the limitations of this method in prompting users to share content. The trend line emerging from this analysis clearly shows that Generative AI is more effective in enhancing various aspects of engagement, particularly in encouraging users to actively participate through actions such as liking and sharing, compared to the traditional method, which tends to produce more stable but less dynamic engagement. These research findings provide valuable insights for social media managers regarding the potential and advantages of Generative AI in digital marketing strategies, particularly in efforts to increase user interaction and engagement on platforms like Instagram.

These findings could serve as a consideration for both businesses to explore the use of AI in content creation, despite the noted shortfall in the number of comments received. In the industry report explain that Generative AI technology can address certain business challenges, with one of AI's capabilities being the generation of creative content in marketing and sales [8].

6. Conclusion

This study aims to conduct a comparative analysis of the effectiveness of content generated using Generative AI and traditional methods in the context of Instagram content creation for Najma Tours and Travel. To achieve this objective, a qualitative approach was adopted, involving in-depth observation of the content creation process using both methods. This observation included a review of various engagement indicators, such as the number of likes, comments, and shares received by the content on Najma Tours and Travel's Instagram account. The qualitative approach allowed for a detailed exploration of how each method contributes to the effectiveness of the content in attracting attention and fostering interaction

with the audience.

The results of this study indicate that Generative AI has significant capabilities in producing high-quality visual content and effective captions that capture the audience's attention. This is evident from the engagement insights obtained, where content generated by Generative AI consistently performed better in terms of likes and shares compared to content created using traditional methods. This suggests that Generative AI can create more engaging content that encourages the audience to interact through actions such as liking and sharing. However, despite the advantages of Generative AI in certain aspects, the study also revealed that AI-generated content still faces challenges in attracting comments from the audience. In this regard, traditional methods demonstrated an advantage with a higher number of comments, indicating that while AI can enhance certain aspects of engagement, there are other areas where traditional methods remain more effective in generating deeper and more participatory interactions from the audience.

This research provides valuable insights for digital marketing practitioners in selecting the appropriate strategy for creating effective social media content. These findings also open opportunities for further exploration of how Generative AI can be integrated with traditional methods to optimize all aspects of engagement, from likes to comments, thereby producing more holistic and successful campaigns on platforms like Instagram.

Acknowledgments

The researchers express their gratitude to the Directorate of Research, Technology, and Community Service, under the Directorate General of Higher Education, Research and Technology, Ministry of Education, Culture, Research and Technology of Indonesia. This work was partially supported by grants 043/SP2H/RT-MONO/LL4/2024 and 079/LIT07/PPM-LIT/2024 from the Directorate General of Higher Education, Research and Technology of Indonesia.

References

1. Wismiron, R. (2023). UMKM 2023 Kendala Memasuki Pasar Digital. *MediaIndonesia.Com*. <https://mediaindonesia.com/opini/548450/umkm-2023-kendala-memasuki-pasar-digital>
2. Martadikusumah, T. A. A., & Indrawati. (2023). Digital Marketing Implementation by Culinary Micro Small Medium Enterprises During Covid-19 (An Indonesia Case). *Quality-Access to Success*, 25(198). <https://doi.org/10.47750/QAS/25.198.25>
3. Sagita, A., Shamsudin, M. S., Ramli, A., Budiharjo, R., & Himawan, A. F. I. (2024). Business Strategy and Small and Medium Enterprises (SMEs) Performance: The Moderating Role of the Business Environment. *Paper Asia*, 40(2b), 33–41. <https://doi.org/10.59953/paperasia.v40i2b.97>
4. Anggadwita, G., Diani Suganda, G. A., Azis, E., & Profityo, W. B. (2021). The Implementation of Technology Capabilities, Agile Leadership and Innovation Ambidexterity to Improve SMEs' Sustainability in Bandung. *Proceedings of the International Conference on Industrial Engineering and Operations Management*.
5. Mardotillah, A., & Ariyanti, M. (2023). Pengaruh Online Consumer Review, Social Media Advertisement, Dan Influencer Endorsement Terhadap Online Purchase Intention Produk Azarine Di Kota Bandung. *Jurnal Ilmiah Manajemen, Ekonomi, & Akuntansi (MEA)*, 7(2),

- 950-968. <https://doi.org/10.31955/mea.v7i2.3088>
6. Winarno, K. O., & Indrawati, I. (2022). Impact Of Social Media Marketing And Electronic Word Of Mouth (E-Wom) On Purchase Intention. *Jurnal Aplikasi Manajemen*, 20(3). <https://doi.org/10.21776/ub.jam.2022.020.03.15>
 7. Harahap, D. S. D., Wahyuningtyas, R., & Firli, A. (2023). The Effect Of Social Media Marketing Grab Medan On Brand Equity With E-Satisfaction And E-Loyalty As Intervening Variables. *International Journal of Science, Technology & Management*, 4(3), 512–526. <https://doi.org/10.46729/ijstm.v4i3.802>
 8. Chui, M., Hazan, E., Roberts, R., Singla, A., Smaje, K., Sukharevsky, A., Yee, L., & Zimmel, R. (2023). The economic potential of generative AI The next productivity frontier The economic potential of generative AI: The next productivity frontier. <https://www.mckinsey.com/capabilities/mckinsey-digital/our-insights/the-economic-potential-of-generative-ai-the-next-productivity-frontier#key-insights>
 9. Muntinga, D. G., Moorman, M., & Smit, E. G. (2011). Introducing COBRAs Exploring motivations for brand-related social media use. *International Journal of Advertising*, 30(1), 13–46. <https://doi.org/10.2501/IJA-30-1-013-046>
 10. Kennedy, C. (2017). *Social Media The Art of Marketing on YouTube, Facebook, Twitter, and Instagram for Success*
 11. Hu, Y., Manikonda, L., & Kambhampati, S. (2014). What We Instagram: A First Analysis of Instagram Photo Content and User Types. *Proceedings of the International AAAI Conference on Web and Social Media*, 8(1), 595–598. <https://doi.org/10.1609/icwsm.v8i1.14578>
 12. Sukunesan, S., Selvarajah, C., & Mellstrom, Z. (2020). Internationalization Via Instagram: An Exploratory Study of Small and Medium Enterprises. *Contemporary Management Research*, 16(2), 77–121. <https://doi.org/10.7903/cmr.19811>
 13. Barger, V., Peltier, J. W., & Schultz, D. E. (2016). Social media and consumer engagement: a review and research agenda. *Journal of Research in Interactive Marketing*, 10(4), 268–287. <https://doi.org/10.1108/JRIM-06-2016-0065>
 14. Mandal, M. Kr. (2003). *Multimedia Signals and Systems*. Springer US. <https://doi.org/10.1007/978-1-4615-0265-4>
 15. Gunelius, S. (2011). *30-Minute Social Media Marketing*. McGraw-Hill Companies.
 16. Burgess, A. (2018). *The Executive Guide to Artificial Intelligence*. Springer International Publishing. <https://doi.org/10.1007/978-3-319-63820-1>
 17. Siau, K. L. (2017). Impact of artificial intelligence, robotics, and machine learning on sales and marketiing impact of artificial intelligence, robotics, and machine. *Association for Information Systems AIS*
 18. Russell, S. J., & Norvig, P. (2003). *Artificial intelligence a modern approach*. Pearson Education
 19. Sterne, J. (2017). *Artificial Intelligence for Marketing*. Wiley. <https://doi.org/10.1002/9781119406341>
 20. Cevallos, A., Latorre, L., Alicandro, G., Wanner, Z., Cerrato, I., Zarate, J. D., Alvarez, J., Villacreses, K., Pfeifer, M., Gutierrez, M., Villanueva, V., Rivera-Fournier, A., Riobó, A., Pombo, C., Puerto, F., & Rodriguez Breuning, J. (2023). *Tech Report: Generative AI*.
 21. Powell, R. R. (2006). Evaluation Research: An Overview. *Library Trends*, 55(1), 102–120. <https://doi.org/10.1353/lib.2006.0050>
 22. Indrawati. (2018). *Metode penelitian kualitatif: manajemen dan bisnis konvergensi teknologi informasi dan komunikasi*. Refika Aditama