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Leveraging the Digital Economy for Tourism Marketing in the Society 5.0 Era: A Case Study of East Kalimantan

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Abstract

Leveraging digital technology in the Society 5.0 era is crucial for tourism marketing to enhance destination attractiveness. However, prior research has often aggregated various digital platforms. A gap remains in understanding which digital variable—be it social media promotion, platform adoption, or pure technological innovation (e.g., AI/VR)—exerts the most dominant impact on destination attractiveness. This study aims to comparatively analyze the influence of social media utilization, digital platform adoption, and digital technological innovation on tourism attractiveness in East Kalimantan. A quantitative method was employed, utilizing a questionnaire survey administered to 120 respondents (comprising tourists and business stakeholders), with data analyzed via multiple linear regression. The results indicate that while all three variables have a positive and significant influence, digital technological innovation ($\beta=0.356$) exerts the most dominant effect, surpassing social media utilization ($\beta=0.324$) and digital platform adoption ($\beta=0.281$). The model successfully explains 65.9% of the variance in tourism attractiveness. This finding underscores the need for tourism marketing strategies to shift from mere social promotion to the development of robust digital experiences. By implication, stakeholders are urged to prioritize investment in technology-based infrastructure and innovation capacity to navigate competition in the Society 5.0 era.

Kata kunci: Tourism, Digital Economy, Technological Innovation, Social Media, Society 5.0

1. Introduction

The global tourism sector is navigating a period of profound transformation. The COVID-19 pandemic served as a powerful catalyst, compelling a fundamental reassessment of the industry's trajectory. In response, the United Nations World Tourism Organization (UNWTO) has championed a paradigm shift toward a more resilient, inclusive, and sustainable model, urging stakeholders to "Rethink Tourism" (UNWTO, 2022). This new vision moves beyond a singular focus on visitor numbers, prioritizing instead the long-term well-being of communities and the environment. In this evolving landscape, digital transformation has emerged not merely as a tool for recovery but as a strategic imperative for building a smarter and more responsible tourism future.

Indonesia's tourism sector has demonstrated remarkable resilience in this post-pandemic era. The Ministry of Tourism and Creative Economy (Kemenparekraf) reported that performance in 2023 significantly surpassed initial targets, with international arrivals exceeding projections and domestic tourism movements rebounding to pre-pandemic levels (Kementerian Pariwisata dan Ekonomi Kreatif Republik Indonesia, 2023). This recovery underscores the nation's potential, yet it also highlights the critical need to align national growth with global sustainability goals.

1.1. East Kalimantan: A Nexus of Economic Diversification and Untapped Potential

The province of East Kalimantan stands at a critical economic crossroads. Historically reliant on extractive industries like oil and coal, the region is now pursuing strategic economic diversification. The provincial government has identified tourism as a key driver for its non-oil-and-gas economy, as outlined in the *Rencana Induk Pengembangan Pariwisata Daerah (RIPPARDA) Kalimantan Timur 2024–2029* (Pemerintah Provinsi

Kalimantan Timur, 2024). Endowed with rich natural resources, unique cultural heritage, and significant ecotourism potential, the province aims to establish itself as a world-class, sustainable destination.

However, the contribution of East Kalimantan's tourism sector remains suboptimal. This performance gap is largely attributed to limited promotional strategies, fragmented marketing efforts, and the insufficient utilization of digital technology to showcase its unique attractions to a global audience (Sugiharto & Haryanto, 2021). The challenge is to bridge this gap by harnessing the power of digital innovation to enhance the region's competitiveness and appeal.

1.2. Conceptual Framework: From the Digital Economy to Society 5.0

The evolution of the digital economy, first conceptualized as an "age of networked intelligence" (Tapscott, 1996), has fundamentally reshaped industries worldwide. In tourism, this led to the rise of "eTourism," where Information and Communication Technologies (ICTs) re-engineered the industry's structure and marketing strategies (Buhalis & Law, 2008). This technological progression has moved through phases, from the efficiency-focused Industry 4.0 revolution (Hamid & Kusumawati, 2021) to the emerging concept of Society 5.0.

Proposed by Japan, Society 5.0 envisions a "super-smart society" that is fundamentally human-centric (Yamaguchi, 2019). Unlike Industry 4.0's primary focus on technological optimization, Society 5.0 leverages technology to solve complex social challenges and improve the quality of human life by seamlessly integrating cyberspace and physical space. This study adopts the Society 5.0 framework because it aligns with the goal of developing a tourism sector that not only drives economic growth but also enhances community welfare and environmental sustainability—a vision that is central to East Kalimantan's long-term development plans.

1.3. Pillars of Digital Transformation and Hypotheses

This study argues that the digital transformation of East Kalimantan's tourism marketing hinges on three core pillars: social media, digital platforms, and technological innovation.

1.3.1. Social Media (X_1): Shaping Destination Image and Engagement

Social media is defined as a group of internet-based applications built on the foundations of Web 2.0, which facilitate the creation and exchange of User-Generated Content (UGC) (Kaplan & Haenlein, 2010). For tourism, platforms like Instagram, TikTok, and Facebook have become primary tools for building destination image, enhancing real-time interaction between tourists and providers, and reaching vast audiences (Santi & Wiranatha, 2022; Hidayat & Nugroho, 2022). This direct engagement and promotional power are expected to positively influence destination appeal and visitor numbers (Indrayani & Sari, 2022). Therefore, the first hypothesis is:

H1: Social media utilization (X_1) has a positive and significant effect on tourism attractiveness and visitor arrivals in East Kalimantan.

1.3.2. Digital Platforms (X_2): Streamlining the Tourism Value Chain

The adoption of digital platforms, such as Online Travel Agents (OTAs) and tourism marketplaces, has simplified the tourism value chain (Putra & Dewi, 2021). These platforms provide consumers with easy access to information, booking services, and peer-generated reviews, which strongly influence the decisions of prospective tourists (Buhalis & Sinarta, 2019). By reducing friction in the travel planning process and building trust through transparent user feedback, these platforms are hypothesized to boost a destination's attractiveness. Thus, the second hypothesis is:

H2: The adoption of digital platforms/tourism marketplaces (X_2) has a positive and significant effect on tourism attractiveness and visitor arrivals in East Kalimantan.

1.3.3. Digital Technological Innovation (X_3): Creating Immersive Experiences

Digital technological innovation—encompassing big data, artificial intelligence (AI), and augmented/virtual reality (AR/VR)—represents a deeper level of digital integration. These technologies are crucial for creating

"Smart Tourism" ecosystems that deliver new, immersive experiences and provide stakeholders with precise insights into market preferences (Gretzel et al., 2015). By fundamentally enhancing the tourism product and enabling the co-creation of value in real-time, these innovations are expected to have a powerful, positive impact on destination appeal (Yuliani & Nugroho, 2022; I. yuliana & A. prasetyo, 2020). This leads to the third hypothesis:

H3: Digital technological innovation (X_3) has a positive and significant effect on tourism attractiveness and visitor arrivals in East Kalimantan.

1.3.4. The Synergy of the Digital Ecosystem (H_4)

While each of these components is impactful individually, their combined, simultaneous effect defines a holistic digital marketing strategy. The successful synergy of social media, platforms, and technological innovation is expected to collectively elevate the competitiveness of East Kalimantan's tourism sector, leading to a significant increase in attractiveness and visitor arrivals (Sugiharto & Haryanto, 2021). This establishes the final hypothesis:

H4: Social media utilization (X_1), digital platform adoption (X_2), and digital technological innovation (X_3) simultaneously have a positive and significant effect on tourism attractiveness and visitor arrivals in East Kalimantan.

Based on this conceptual framework, this research is crucial for empirically testing these relationships and providing strategic insights for stakeholders. The findings will inform the development of effective and sustainable tourism marketing strategies for East Kalimantan, positioning the province to thrive in the Society 5.0 era.

2. Research Method

This study employed an explanatory quantitative method to examine the relationships and influence between three independent variables (X_1, X_2, X_3) and one dependent variable (Y). The research was conducted over approximately three months at flagship tourism destinations in East Kalimantan Province, such as Kakaban, Derawan, and Labuan Cermin. The research population comprised all tourism stakeholders and tourists at these destinations. A sample of 120 respondents was drawn using a purposive sampling technique, adhering to criteria that respondents were either tourists who had visited at least once in the last two years, or tourism business actors (MSMEs, travel agencies, destination managers) who utilize digital platforms. The research variables consisted of three independent variables: Social Media Utilization (X_1), Digital Platform Adoption (X_2), and Digital Technological Innovation (X_3), and one dependent variable: Tourism Attractiveness & Visitor Arrivals (Y). Each variable was measured using a questionnaire with indicators scored on a 1–5 Likert scale. In addition to questionnaires, primary data were collected through structured interviews with officials from the Tourism Agency and destination managers, supplemented by secondary data from tourism reports and visitor arrival statistics. The data analysis technique commenced with research instrument testing, which included a validity test using Pearson Product Moment Correlation and a reliability test using Cronbach's Alpha. Prior to regression analysis, a series of classic assumption tests were performed, encompassing the normality test (Kolmogorov-Smirnov), multicollinearity test (VIF and Tolerance), heteroscedasticity test (Glejser test), and autocorrelation test (Durbin-Watson). The primary data analysis utilized descriptive statistical analysis to present a general overview of the respondent profile, along with multiple linear regression analysis to test the influence of the independent variables on the dependent variable. The regression model used is as follows (Equation 1):

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \epsilon$$

In this equation, Y is Tourism Attractiveness & Visitor Arrivals; X_1 is Social Media Utilization; X_2 is Digital Platform Adoption; and X_3 is Digital Technological Innovation. Hypothesis testing was conducted using the t-test (for partial influence), the F-test (for simultaneous influence), and the Coefficient of Determination (R^2) analysis to measure the contribution of the independent variables in explaining the dependent variable.

2.1. Figure

This section outlines the operational definitions of the variables used in this study, which are derived from the conceptual framework presented in the previous section. Operationalization is the process of defining abstract theoretical concepts into measurable indicators. This study consists of three independent variables and one dependent variable.

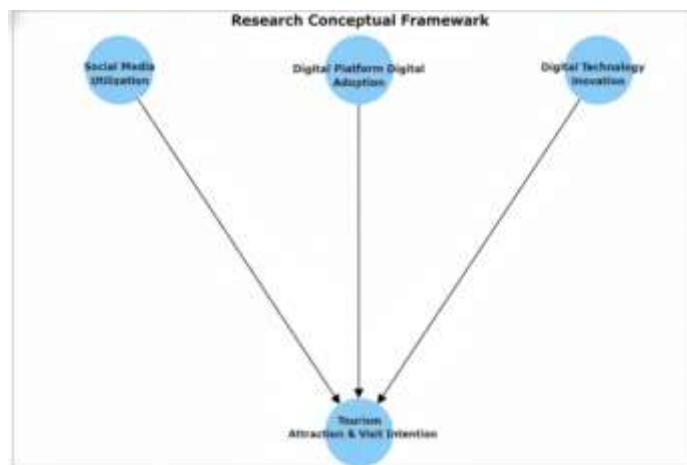


Figure 1 Image of Relationship Between Constructs.

2.2. Table

Of the 120 respondents, the data was dominated by tourists (70.8%), who were primarily domestic (65.0%), with the largest age group being 18–25 years (33.3%). The research instrument tests indicated that all questionnaire items were valid (r -calculated > r -table 0.361) and reliable (Cronbach’s Alpha for all variables > 0.70). The classic assumption test results also demonstrated that the data was normally distributed (Asymp. Sig. 0.200 > 0.05), free from multicollinearity (all VIF < 10), free from heteroscedasticity (Glejser Sig. > 0.05), and free from autocorrelation (Durbin-Watson = 1.891). The data was thus deemed suitable for regression analysis.

The multiple linear regression analysis (Table 1) shows that all three independent variables have a significant effect on the dependent variable

Table 1 Multiple Linear Regression Analysis Results (Coefficients)

Independent Variable	Unstandardized B	Std. Error	Standardized Beta	t Hitung	Sig.
(Contant)	2,145	0,721	-	2,975	0,004
X ₁ : Social media Utilization	0,324	0,089	0,312	3,640	0,000
X ₂ : Digital Platform Adoption	0,281	0,094	0,298	2,989	0,003
X ₃ : Digital Technological Innovation	0,356	0,091	0,341	3,912	0,000

From the *Unstandardized Coefficients (B)* column in Table 1, the multiple linear regression equation can be formulated as follows:

$$Y = 2.145 + 0.324X_1 + 0.281X_2 + 0.356X_3 + \epsilon$$

The t-test (partial) results confirm that H1, H2, and H3 are accepted (all Sig. values < 0.05). Digital Technological Innovation (X₃) has the highest B coefficient (0.356) and Beta coefficient (0.341), indicating it has the most dominant influence on tourism attractiveness.

Table 2 ANOVA test (f-test)

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	432,154	3	144,051	31,624	0,000
Residual	223,846	116	1,929		
Total	656,000	119			

The F-test (simultaneous) results in Table 2 show an F-value of 31.624 with a Sig. of 0.000. This means H4 is accepted: all three independent variables simultaneously have a significant effect on Y. Based on Table 3, the Adjusted R Square value is 0.648. This signifies that 64.8% of the variance in Tourism Attractiveness & Visitor Arrivals (Y) can be explained by Social Media Utilization, Digital Platform Adoption, and Digital Technological Innovation.

Table 3 Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0,812	0,639	0,648	2,134

3. Result And Discussion

This study involved 120 respondents, comprising tourists (70.8%) and tourism business stakeholders (29.2%) in East Kalimantan. The respondent profile, as detailed in Table [Respondent Characteristics], was dominated by males (55.0%) and the productive age group of 18-25 years (33.3%), indicating that the target market for digital tourism in East Kalimantan consists of young people.

Prior to regression analysis, the data underwent prerequisite testing. The instrument test results showed that all questionnaire items were valid, as the F -calculated value for each item was greater than the F -table value (0.361). The instruments were also deemed reliable, with all research variables (X_1, X_2, X_3 and Y) possessing Cronbach's Alpha values above the 0.70 threshold.

Furthermore, the data satisfied the classic assumption tests. The Kolmogorov-Smirnov test results indicated a normal data distribution (Asymp. Sig. 0.200 > 0.05). Based on VIF values (all below 10) and Tolerance values (all above 0.10), the model was free from multicollinearity issues. The Glejser test also confirmed the absence of heteroscedasticity (all sig. > 0.05), and the Durbin-Watson value (1.891) indicated no autocorrelation.

The first discussion addresses the research question regarding the influence of social media utilization (X_1). The F -test results showed that H1 was accepted. Social media utilization has a positive and significant effect on tourism attractiveness (sig. 0.000). This finding is consistent with research by Indrayani & Sari (2022), which asserts that destination awareness can be effectively increased through social media. Promotion via Instagram and TikTok has been proven to increase visit intention, particularly among young tourists in East Kalimantan.

Second, addressing the research question on the role of digital platform adoption (X_2), H2 was also accepted. Digital platform adoption has a positive and significant effect (sig. 0.003). This indicates that tourism marketplaces, such as Traveloka and Booking.com, play a crucial role in marketing strategy. The ease of access to information and online transactions simplifies the booking of tickets and accommodations for tourists, which directly drives an increase in visits. This finding supports the study by Putra & Dewi (2021).

Third, addressing the research question on the effectiveness of technological innovation (X_3), H3 was accepted. Digital technological innovation has a positive and significant effect (sig. 0.000). Among the three independent variables, digital technological innovation (X_3) had the highest B coefficient (0.356) and Standardized Beta (0.341). This finding confirms that X_3 is the most dominant influencing factor in this model. The discussion of this finding is that tourists in the Society 5.0 era seek not only convenience but also "experience." The use of Virtual Reality (VR) and Augmented Reality (AR) can create unique experiences that enhance destination competitiveness, aligning with the study by Sugiharto (2023).

Finally, addressing the fourth research question regarding the overall digital economy strategy, H4 was accepted. The F-test (ANOVA) results showed an F -value of 31.624 with a significance of 0.000. This proves that X_1, X_2 , and X_3 simultaneously have a significant effect on tourism attractiveness (Y). The Coefficient of Determination (Adjusted R Square) value was 0.648. This means that 64.8% of the variance in tourism attractiveness and visitor arrivals can be explained by these three digital variables. The remaining 35.2% is influenced by other factors outside this model, such as government policies or infrastructure quality.

4. Conclusion

Based on the research findings, it is concluded that the digital economy-based marketing strategy in the Society 5.0 era is effective for tourism development in East Kalimantan. Social Media Utilization (X_1) was proven to have a positive and significant influence, demonstrating the effectiveness of promotion via platforms like Instagram and TikTok in attracting tourists. Digital Platform Adoption (X_2) also exerted a positive and significant influence, as tourism marketplaces facilitate easier access to information and reservations for tourists. Digital Technological Innovation (X_3) was found to have the most dominant influence on enhancing tourism attractiveness, driven by

the use of virtual tours and digital payment systems. Simultaneously, all three variables significantly influence tourism attractiveness and visitor arrivals. Based on these findings, it is recommended that the East Kalimantan regional government strengthen digital infrastructure in tourism areas and provide technology adoption training for tourism MSMEs (Micro, Small, and Medium Enterprises). Tourism operators are encouraged to enhance digital content creativity, such as through storytelling and short videos, and to optimize the use of OTAs (Online Travel Agents) to reach a broader market. For future researchers, it is recommended to include other variables, such as tourist satisfaction or service quality, and to consider employing more complex analytical methods, such as SEM (Structural Equation Modeling), for the further development of digital tourism studies.

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