

## The impact of digital marketing on gen Z's Mangrove eco-tourism brand loyalty in Vietnam

Nguyen Thi Nhung<sup>1\*</sup>, Nguyen Linh Phuong<sup>2</sup>

<sup>1,2</sup>Business Administration Faculty- Academy of Finance, Vietnam; nguyennhung@hvtc.edu.vn (N.T.N.)

nguyenlinhphuong@hvtc.edu.vn (N.L.P.).

**Abstract:** The article examines the relationship between digital marketing tools and customers' mangrove eco-tourism brand loyalty using a linear regression model with a sample size of 750 customers distributed in three major cities in Vietnam, namely Hanoi, Da Nang, and Ho Chi Minh City. Research indicates that digital marketing tools, including websites, display advertising, search engine optimization, and social media, influence customers' mangrove eco-tourism brand loyalty. Moreover, research results suggest two new factors: display advertising and social media help enhance brand awareness among Gen Z, and word-of-mouth marketing effectiveness from current customers to potential customers significantly affects Gen Z's mangrove eco-tourism brand loyalty.

**Keywords:** Digital marketing, Brand loyalty, Generation Z, Mangrove forests.

### 1. Introduction

Apparently, mangrove forests are considered an effective buffer between land and sea, receiving large amounts of trace inorganic and organic elements, and protecting coastal water sources from pollution. However, this ability may depend on sediment characteristics, vegetation composition and hydrology. The ecological, environmental and economic importance of mangrove forests has been widely recognized worldwide and proven by domestic and foreign scientists with data at different scales and ecological regions. In addition, the potential role of mangrove forests can include eight main types of environmental services: (1) Carbon absorption, storage, and sink services; (2) Sedimentation and sludge reduction services; (3) Coastal erosion prevention services; (4) Telecommunication jamming Services; (5) Clean water supply services, filtering heavy metals and pollutants; (6) Beauty landscape services; and (7) Food ingredient supply services. According to data reported by the Ministry of Agriculture and Rural Development (MARD), the total area of mangrove forests in Vietnam is about 200,000 hectares. With this area, Vietnam ranks first among nations having mangrove forests worldwide. In reality, some large mangrove forests in Vietnam such as Can Gio mangrove forest (Ho Chi Minh City), Ru Cha mangrove forest (Thua Thien - Hue province), primeval mangrove forest in Tam Giang (Quang Nam province, Mangrove forests in Ca Mau... Prominent among them is Can Gio mangrove forest with the total area of about 37,000 hectares, known as the most stunning mangrove forest in Southeast Asia. Through pilot calculation of the amount mangrove forest carbon in 6 provinces in different ecological regions, the results depict that the carbon reserve of Vietnam's mangrove forests is about 245 tons/ha. Typically, the total accumulated carbon reserve in mangrove forests of Quang Ninh province, Ho Chi Minh City, and Ca Mau are approximately over 3 million tons, 15.7 million tons, and 12.7 million tons, respectively. Statistically, the average amount of carbon in the biomass of living plants, including food Living things on the ground and underground roots accounts for only 29%. The remaining 71% is allocated in the soil under the mangrove canopy, with the depth of 30 centimeter.

Undoubtedly, developing the mangrove ecotourism brand is vital for Vietnam. Furthermore, when choosing brand development tools, digital marketing is regarded as a relatively effective tool.

It is Digital marketing is seen as a vital element in promoting the products, services or brands of a company or organization. In today's digital technology age, digital marketing has become an indispensable part of businesses' customer outreach strategies. Using online channels such as websites, social networks, email marketing, online advertising and other platforms has helped businesses reach customers quickly and effectively, especially maintaining brand loyalty of customers. Recent studies by: James [1]; Mutanu [2]; Onyango [3] and Yasmin, et al. [4] all demonstrate the impact of digital marketing tools on sales revenue and brand loyalty of customers. Moreover, communication and product promotion on digital platforms will help brands reach customers and develop business services. To attain the best communication effectiveness, enterprises need a tool with a variety of communication channels, having capability of creating flexible campaigns combined with a large data warehouse, and powerful, accurate analysis.

In reality, brand loyalty is determined through the purchase frequency and proportion of goods purchased for a brand and the customer's purchase probability [5, 6]. Meanwhile, Erdoğan and Ergun [7] identified that as long as customers are confident to buy products from the same brand, brand loyalty increases. Jacoby and Jaccard [8] provides a concept of loyalty that combines behavioral components and attitude component. In fact, customer loyalty is also measured as an attitude. Attitude loyalty refers to the internal manifestations of customers such as: psychology, customer preferences and customer trust for a specific product or service and customer commitment to the brand. What is more? Brand loyalty behavior is illustrated through repeat purchasing behavior in the past, present and future. Therefore, creating and maintaining customer loyalty plays an critical role in ecotourism development in the digital era when customer behavior has changed a lot.

Research by James [1] also reveals that: effective application of digital marketing tools will allow mangrove eco-tourism brands to proactively, easily create and manage diverse, flexible and appropriate communication campaigns, construct links between different communication channels, helping to optimize both costs and communication efficiency. This is indeed a critical foundation to attract customers, increase brand recognition and create customer loyalty. Simultaneously, digital marketing tools will aid in appraising the usefulness of system use as well as communication effectiveness to come up with helpful solutions to revamp communication campaigns and develop appropriate systems.

Currently, there are many concepts about "generation Z". Nevertheless, the most popular one is the concept used for people born from the mid-90s to the 2000s. They were born with the development of science and technology advances of the 21<sup>st</sup> century, typically the Internet and mobile phones. In the research, the author used the criteria of the United Nations Population Fund (UNFPA) [9] to identify people of generation Z, whereby generation Z is people born in the period from 1997 to 2013. Additionally, the climate crisis and environmental pollution have had a significant impact on the formation of travel habits and trends of generation Z. In the present time, Gen Z aim for "green" and sustainable tourism. Through their trend, they hope to contribute to forming good habits for the community in exploiting and protecting and preserving the natural landscape and tourism environment.

## 2. Theoretical Framework

### 2.1. Digital Marketing

It is Digital marketing that is based on marketing theory and uses digital media channels (search engines, social networks, etc) to reach potential customers, thereby promoting brands, products, and services. It can be understood as the activity of applying digital technologies and media to obtain marketing goals Chaffey and Ellis-Chadwick [10]. Chaffey and Smith [11] revealed that digital marketing tools are divided into 6 main groups: (i) Search-based marketing, (ii) Virtual public relations, (iii) Virtual partnerships, (iv) Virtual advertising, (v) Email marketing, (vi) Social network marketing. Some empirical studies depict that digital marketing is a critical premise to bring brand trust and create customer brand loyalty [12]. This means that if an enterprise has a good digital marketing strategy, it

will easily reach customers and provide better service quality, which will lead to higher levels of customer satisfaction and increased brand loyalty [13]. In reality, deploying marketing activities on digital platforms helps reach customers effectively, propose different values and communicate effectively with target customers, and manage the online customer lifecycle through stages that attracts visitors to the website, converts them into customers, retains and grows. As a result, it will help enhance customer loyalty to the brand that the enterprise creates.

### *2.2. Brand Loyalty of Customers*

According to Aaker [5] brand loyalty is the customer's attachment to the brand associated with the products and services that the business sells in the market. Brand loyalty is also viewed as the steadfastness of customers when choosing to utilize a brand and when they have the need for a specific type of product or service associated with that brand [6]. Customers demonstrating brand loyalty by continuing to purchase the brand's products, despite competitors' efforts to attract them. This fact is so called customer commitment to the brand [14]. In the future, customers intend to continue purchasing that brand, have positive thoughts about the brand and recommend that brand to others and ignore negative brand information [15]. Essentially, brand loyalty comes from customers continuously searching for solutions that satisfy their needs and upgrade perceived quality. Therefore, there will be a long-term relationship with a brand that they identify as having all the qualities they are looking for to satisfy their need at the optimal level [15]. Actually, enterprises owning brands that create customer loyalty will have the ability to generate high profits. Kotler and Keller [16] pointed out: when implementing business activities in general and marketing in particular based on the 20-80 principle (the top 20% of customers can generate 80% of a company's profits) means that businesses must positively impact customer loyalty. Especially in the context of digital transformation, creating good experiences for customers is extremely crucial. Van Raaij [17] with his research also affirmed that brand loyalty is a positive attitude and a priority that facilitates repeat purchases by customers, not a purchase behavior. In fact, brand loyalty is made up of behavioral loyalty and attitudinal loyalty. It represents the customer's repeat purchase frequency or commitment preference, repeat purchase and repeat purchase intention [18, 19].

### *2.3. Proposed Research Model*

There is no doubt that strong development of digital technology along with the Technology revolution has changed the quality of life, the way enterprises operate and the behavior of customers around the world. This opens up an era of competition between businesses on digital platforms. Actually, the challenges of mangrove eco-tourism businesses are increasingly greater as today's customers are influenced and depend more on technology applications. Therefore, brand loyalty of customers and brand attachment are factors that create success for enterprises in the market competition [20]. According to Severi and Ling [21] brand loyalty is obtained when customers tend to remain loyal to a brand that provides them with better products or services than another brand. To achieve this goal, brands require optimal tools. Additionally, brands that effectively use digital marketing will support businesses in promoting and selling products/services via online channels such as social networks, websites, emails, and so on, to reach target customers and create customer loyalty with wide coverage and balanced costs. Erdoğan and Ergun [7] affirm that brand loyalty is a vital asset for businesses because it contributes to the continuity of the customer life cycle and results in positive support for services of a specific enterprise in the market. Undoubtedly, digital marketing has the merit of creating two-way interaction between businesses and customers. It is seen as a crucial part of the strategy to help businesses not only promote their brands but also build relationships with customers and increase brand trust, contributing to obtain sustainable growth and development. Thus, brand loyalty represents a customer's long-term commitment to a brand and is used in research to consider both attitudes and behaviors reflected in price acceptance, intention to continue using the brand for a long time and repeat brand usage behavior.

In reality, digital marketing tools utilized to influence customer brand loyalty in the mangrove ecotourism sector include:

Owned Media are channels owned by mangrove eco-tourism brands, which often consist of websites, microsites or blogs,... connecting to create brand awareness and maintain customer loyalty toward the brand that mangrove eco-tourism enterprises create and develop. The focus is on web/blog tools because when a brand uses digital marketing, measurement is more effective. Interestingly, brands can audit the number of visitors to the Website or social media pages, the number of clicks on an ad, the number of online purchases made and the amount of time customers spend on the Website [22].

*H<sub>1</sub>: Website positively affects mangrove ecotourism brand loyalty of gen Z*

Paid Media is a form of media to be reimbursed. In reality, enterprises pay for these channels to perform on-demand advertising (such as display advertising, social ads, search display advertising, KOLs, retargeting, and so on), perform the process of enhancing brand awareness and stimulate customers to make commitments to selected brands. Apparently, display advertising campaigns have a broad reach and can help enterprises achieve their campaign goals by reaching customers on every brand platform that mangrove ecotourism developers are using.

*H<sub>2</sub>: Display advertising has a positive impact on gen Z's mangrove brand loyalty*

Search engine optimization: A search engine is a software that allows users to search and read information contained within that software, on a website, a domain, numerous different domain names, or across the entire internet, mobile platforms and search engine optimization (SEO) [23]. Search Engine Marketing (SEM) refers to the process of driving traffic and gaining visibility from search engines through paid advertising (PPC) and search engine optimization (SEO). In addition, other studies also suggest that search engine optimization is also one of the useful tools that helps mangrove eco-tourism brands reach their customers. In terms of search engine optimization, it is performed by using keywords that search engine users have entered to determine the relevance of a Web page to the user's needs, influence its brand identity development and is the foundation for creating customer brand loyalty [24].

*H<sub>3</sub>: Search engines positively impact mangrove ecotourism brand loyalty of gen Z*

Social Media marketing is the form of promotion via websites such as Facebook, Instagram, Tiktok, etc. Indeed, Marketing via social networks helps reach more people, provide quickly and promptly a variety of information. Moreover, through social networking channels, enterprises can interact directly with customers and evaluate the level of customer satisfaction through reviews. Enterprises can also run advertisements on social networks to reach the right target customer group and, importantly, create customer loyalty to the mangrove ecotourism brand.

*H<sub>4</sub>: Social media marketing positively impacts mangrove ecotourism brand loyalty of gen Z.*

#### 2.4. Research Methodology

The research was conducted using qualitative research methods combined with quantitative research.

Qualitative research aims to discover research problems through document research methods. Analysis and synthesis methods are utilized to collect information about previous research works. The theoretical framework is built based on the impact of marketing to customer brand loyalty in general and to mangrove ecotourism in particular. In addition, descriptive statistical method is used based on information collected from survey questionnaires to clarify the characteristics of customers using mangrove eco-tourism services. Survey subjects include: 750 customers distributed in 03 major cities: Hanoi, Da Nang and Ho Chi Minh City.

Quantitative research method is carried out through questionnaire survey method to survey subjects. The author uses SmartPLS 4 software to support the evaluation of the measurement model and EFA factor analysis and uses SPSS for statistics. It is divided into 02 stages:

Preliminary quantitative research is to appraise the reliability of the scale to eliminate indicators that are not suitable for the research scope of the topic. This step includes the following main activities:

preliminary survey design, preliminary assessment of scale reliability using Composite Reliability and Cronbach's alpha coefficient, and the construction of the official questionnaire. Moreover, using the questionnaire is obtained after the qualitative research step, and data collection. From the collected data, the author initially evaluate the reliability of the scale by testing Cronbach's alpha and Composite Reliability. If a scale does not meet the reliability threshold, each observed variable with the lowest outer loading will be eliminated in turn to enhance reliability. After eradicating inappropriate variables, Cronbach's alpha test was performed again to check the reliability of the scales. Finally, appropriate observed variables will be used to build an official survey questionnaire, preparing for the next step.

Formal research was conducted to test the relationship of digital marketing tools to customers' mangrove eco-tourism brand loyalty. Variables are measured using a 5-level Likert scale (1 - Completely disagree; 2 - Disagree; 3 - Neutral; 4 - Agree and 5 - Completely agree).

### 2.5. Research Sample

According to Hair [25] the minimum sample size to use EFA is 50, preferably 100 or more. To assure the reliability of the research sample, the ratio of observations to an analyzed variable is 5:1 or 10:1. Some researchers believe that this ratio should be 20:1. "Number of observations" simply means the number of valid survey forms needed; "measured variable" is a measurement question in the survey. In this study, the author will select the sample using a non-probability method and the minimum sample size is 5 times greater than the total number of observed variables. The total number of observed variables is 27, so the minimum sample size must be 135. However, the author decided to choose 750 samples to increase the efficiency and reliability of data for the topic. The method of implementation is through both online surveys via email, Facebook and combined with direct surveys at some mangrove ecotourism sites in Vietnam.

## 3. Research Results

### 3.1. Results of Statistical Analysis

To collect information, the author conducted an investigation through distributing directly the questionnaire to gen Z in 03 major cities: Hanoi, Da Nang and Ho Chi Minh City. According to the sampling plan, the sample size needed to be collected is 730 samples with a total number of questionnaires distributed for the survey of 750, corresponding to an expected response rate of 97.33%. After checking the returned questionnaires, 40 were invalid because they had not been completed. The remaining 710 valid questionnaires were used for data analysis. Statistical information of the survey samples is illustrated in Table 1.

**Table 1.**  
Research information samples.

Sample information	Number of customers	Ratio (%)
Gender	710	100
Male	295	41.55
Female	415	58.45
Income	710	100
Below 10 millions dong	230	32.39
From 11 to 20 millions dong	383	53.93
Over 20 millions dong	97	13.68
Local	710	100
Hanoi	265	37.32
Da Nang	205	28.87
Ho Chi Minh city	240	33.81

In Vietnam, the Gen Z generation currently accounts for more than 47% of the country's population and is becoming a major factor contributing to today's digital economy. Thanks to early access to the media, the perspective of generation Z is diversified. As a result, new destinations that are strongly

communicated on social networks such as Tiktok, Facebook, Instagram, etc, will quickly capture the strong attention of young people. According to the Vietnam Tourist Tracking Report, in 2023, the vast majority of Vietnamese tourists were under 42 years old, followed by generation Z (18-26 years old). Compared to 2022, the proportion of Gen Z visitors had a high conversion growth rate, and the experiential travel trend of this group has been changing significantly.

**Table 2.**

Results of evaluating the scale using Cronbach's alpha.

Scale	Symbol	Number of observed variables	Cronbach's alpha coefficient	Minimum variable-total correlation Coefficient
Website	WS	4	0.803	0.712 (WS1)
Display advertising	QC	6	0.825	0.706 (QC2)
Search engine optimization	TC	6	0.930	0.695 (TC3)
Social media marketing	TT	6	0.809	0.707 (TT3)
Mangrove ecotourism brand loyalty of customers	LT	3	0.918	0.727 (LT)

### 3.2. Quantitative Research Results

The results of appraising the scales using Cronbach's alpha indicate that the scales are reliable. Cronbach's alpha coefficient is greater than 0.6 and the total variable correlation coefficient is greater than 0.3. Hence, all observed variables are retained. In which, the scale of digital marketing tools affecting the mangrove ecotourism brand loyalty of gen Z includes four observed variables. The results depict that digital marketing tools all impact the mangrove ecotourism brand loyalty of Gen Z.

Undoubtedly, deploying activities on the website will help mangrove ecotourism areas increase customer satisfaction, attract new customers, improve brand awareness, be demonstrated by enhancing sales when implementing business activities, and maintain brand loyalty of gen Z.

**Table 3.**

Positive influence of website on mangrove ecotourism brand loyalty of gen Z.

No.	Cronbach's Alpha coefficient	Observed variables	Coding	Factor loadings
1	0.803	Websites improve customer satisfaction	WS1	0.712
2		The website penetrates new markets and attracts new customers	WS2	0.843
3		Website improves brand recognition	WS3	0.819
4		Website increases sales volume	WS4	0.811

Source: Results of author's research data analysis

Displaying regularly advertising related to mangrove ecotourism services on various platforms used by Gen Z has boosted their shopping behavior. In addition, the merit of tourism services with large platforms will increase access to Gen Z of the brands created by the mangrove eco-tourism area, which has a great influence on information updates and direction of public opinion. Moreover, advertising displayed on platforms such as Facebook, Instagram or Tiktok all have support policies for media companies or business individuals to run advertisements on these platforms. This is actually an advantage that mangrove ecotourism brands can exploit to enhance brand loyalty of Gen Z.

**Table 4.**

Positive influence of display advertising on mangrove ecotourism brand loyalty of gen Z

No	Cronbach's Alpha coefficient	Observed variables	Coding	Factor loadings
1	0.825	Display advertising increases customers visiting websites/blogs	QC1	0.791
2		Display advertising increases customer visits to media sites	QC2	0.706
3		Display advertising increases product consumption	QC3	0.802
4		Display advertising increases market share	QC4	0.821
5		Display advertising penetrates new markets and attracts new customers	QC5	0.805
6		Display advertising increases brand awareness	QC6	0.822

Search engine optimization (SEO) with keywords related to user intent is important for a brand. To optimize brand awareness, mangrove eco-tourism businesses can pay attention to incorporating informational keywords into their content. Furthermore, keywords that are appropriate for the first stage of the customer journey – when customers begin searching for information and want to learn more about available products will strongly influence brand awareness and repeat purchasing behavior.

**Table 5.**

Positive influence of search engine optimization on mangrove ecotourism brand loyalty.

No.	Cronbach's Alpha coefficient	Observed variables	Coding	Factor loadings
1	0.930	SEO increases the number of customers visiting the website	TC1	0.788
2		SEO increases the number of clicks on ads	TC2	0.862
3		SEO increases the number of visits to social networking sites	TC3	0.695
4		SEO reaches new markets and new customers	TC4	0.831
5		SEO improves brand awareness	TC5	0.819
6		SEO increases customer commitment to repeat purchases	QC6	0.905

It is social media marketing that is a strong influencer of brand loyalty among Gen Z, not only providing users with the ability to view and access information but also allowing sharing, engagement and multi-modal content creation privately, semi-privately, and publicly available through a network of friends, followers, and users.

**Table 6.**

Positive influence of social media on mangrove ecotourism brand loyalty of gen Z.

No	Cronbach's Alpha coefficient	Observed variables	Coding	Factor loadings
1	0.809	Social media increases the number of customers	TT1	0.805
2		Social media increases customer satisfaction	TT2	0.808
3		Social media increases sales	TT3	0.707
4		Social media reaches new markets and new customers	TT4	0.762
5		Social media increases customer loyalty	TT5	0.801
6		Social media increases the effectiveness of word-of-mouth marketing from current customers to potential customers	TT6	0.803

After identifying four groups of factors with observed variables that are consistent with each other, the study performed multivariate regression analysis with four independent variables and one dependent variable. The chosen method is the Enter method.

**Table 7.**  
Regression coefficients.

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
(Constant)	0.115	0.421		0.232	0.778		
WS	0.081	0.052	0.083	1.952	0.054**	0.834	1.241
QC	0.095	0.054	0.111	1.996	0.047*	0.765	1.405
TC	0.065	0.034	0.121	1.996	0.027*	0.745	1.313
TT	0.092	0.039	0.086	2.088	0.037*	0.959	1.043

Note: \*: Significant at the 5% level; \*\*: Significant at the 10% level.

The results of regression analysis indicated in Table 7 identify that the independent variables used in the model are all statistically significant. The Tolerance coefficient was recorded at a fairly high level. What is more? The variance inflation factor (VIF) is low (below 2), depicting that the independent variables do not have multicollinearity with each other.

From the above results, the multiple regression equation represents the relationship between the elements of digital marketing and customers' mangrove eco-tourism brand loyalty.

$$\text{Result} = 0.115 + 0.081 \text{ WS} + 0.095 \text{ QC} + 0.065 \text{ TC} + 0.092 \text{ TT}$$

As a result, the research has proven that four groups of factors all have a positive influence on the mangrove ecotourism brand loyalty of Gen Z. In particular, the influence variable from social media has the strongest impact on brand loyalty, with an influence corresponding to a regression coefficient of 0.095.

In addition, the author conducted in-depth interviews with experts and illustrated that: 80% of businesses surveyed have a digital marketing strategy or plan even though they are applying digital marketing, 83% of businesses have advanced processes effectively, 86% of companies are satisfied with the level of integration of digital and traditional media channels, 89% of enterprises see opportunities from digital marketing.

#### 4. Conclusion

In recent years, research on customer loyalty in relation to Vietnamese digital marketing tools has been of interest to researchers. Nevertheless, there has not been much in-depth research on this relationship, and its applicability is limited. Furthermore, the business of mangrove ecotourism services associated with nature conservation is quite new. Indeed, mangrove forests help stabilize coastlines, protect dikes and act as a shield against storms and natural disasters. They have contributed significantly to the socio-economic life of coastal people in Vietnam. In fact, mangrove ecosystem resources have been exploited for a long time as construction materials, charcoal pits, firewood, tannin, food, honey, herbs, etc. Vietnam has about 3,260 km of coastal roads running along 28 provinces and cities from Mong Cai (Quang Ninh province) to Cau Mau. Running along that coastline is a number of large mangrove forests such as: Can Gio mangrove forest (Ho Chi Minh City), Ru Cha mangrove forest (Thua Thien - Hue province), primary mangrove forest in Tam Giang (Quang Nam province, mangrove forest in Ca Mau). However, the area of mangrove forests in Vietnam is at risk of being seriously threatened from shrinking area because of widespread exploitation and deforestation. In addition, winds, storms, and ocean waves are also the causes of shrinking the area of mangrove forests. Environmental pollution also seriously affects mangrove forests. Therefore, research on factors affecting the development of mangrove ecotourism to raise awareness of gen Z is critical.

#### Transparency:

The authors confirm that the manuscript is an honest, accurate, and transparent account of the study; that no vital features of the study have been omitted; and that any discrepancies from the study as planned have been explained. This study followed all ethical practices during writing.



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