

# Effect of Digital Marketing on Consumer Buying Behaviour in the Modern Trade Sector in Egypt

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Received November 21, 2022; Revised January 02, 2023; Accepted January 15, 2023

**Abstract** This research paper examines digital marketing channels (E-mail Marketing, Mobile Marketing, and Social media Marketing) for marketers. It analyzes the effect of these channels on the consumer buying decision process in the Egyptian market in the modern trade sector. The author in the research paper researched an online questionnaire. The questionnaires were administered based on a simple sampling method and obtained in the Egyptian market. 275 questionnaires were distributed, and 275 available samples were collected, resulted in a response rate of 100% to all those who chose to participate. Findings indicate that all E-mail Marketing, Mobile Marketing and Social Media Marketing have positive effect on the consumer buying decision process in the Egyptian market in the modern trade sector and that between the independent variables; Mobile marketing has greater impact on consumer buying decision process, then E-mail marketing and Social media marketing respectively.

**Keywords:** digital marketing, consumer behavior, modern trade sector, email marketing, mobile marketing, social media marketing

**Cite This Article:** Ahmed Othman Aly Ziko, and Amal Asfour, "Effect of Digital Marketing on Consumer Buying Behaviour in the Modern Trade Sector in Egypt." *Journal of Business and Management Sciences*, vol. 11, no. 1 (2023): 46-62. doi: 10.12691/jbms-11-1-4.

## 1. Introduction

### 1.1. Digital Marketing and Consumer Behavior

Technology has changed our world throughout time. Technological innovation is reshaping every element of existence. Rapid technological improvements have made it feasible for everyone to access essential information. Mobile phones allow us to acquire worldwide news and information much more rapidly and easily than before. [1]

Technology is changing the game and creating new chances for marketers and consumers to communicate. The internet and the web have changed how businesses operate; for example, with the click of a mouse button, you can have an Amazon package delivered to your door in days; consumers now have complete access to brands; and businesses are more willing to communicate with customers in a timely manner and work on customer complaints [2]. As a result of digitalization, wholesalers and retailers have to change their operational structures. Due to its statistics, measuring digital marketing ROI is easier. Before digital marketing, it was hard to know how many people saw an ad and their demographics. ROI is now easily calculable, which wasn't possible before [3].

Customers saved time and effort by gaining access to items and services from around the world with a few mouse clicks, without having to relocate. [4]

Digital marketing must be implemented alongside traditional marketing approaches. [5]

Digital marketing is using electronic devices or the internet for marketing. This style of marketing helps create, promote, and manage brands. Businesses employ search engines, social media, email marketing, and their own websites to engage current and potential customers. Digital marketing allows you to precisely target your customers at a lesser cost. Digital marketing is measured in this way. Digital marketing boosts sales and consumer loyalty [6].

Digital marketing and the digital era have changed customer behaviour. Our times are unstable. In marketing, which has moved away from mass communication, where marketers told customers what to do, numerous transformations are happening, and we're witnessing them. Modern consumers are informed and powerful. They're bombarded with more digital stuff than ever before. Nowadays, clients can choose from several brands. Customers are becoming more demanding. They know what they want, how to get it, and who they want to supply it.

Customers desire a personalised service experience and consistent messaging customised to their needs. Customers increasingly reject anything they perceive as marketing. Consumers are more marketing-savvy. As

customers' computer proficiency increases, they get more annoyed by unsolicited content and conversations. They rely on recommendations from friends, influencers, experts, and consumers, ratings, testimonials, website evaluations, and a Google search on the brand. They check online ratings and reviews [7].

Modern consumers aren't loyal; they prefer to sample several things and switch brands often. Consumers desire an immediate response to their activities, a clear and speedy response to their inquiries, and the ability to make viral postings or tweets to hurt a corporation if they are displeased with its service. The digital realm will undergo major and rapid shifts in the near future, and technology will continue to impact marketing efforts globally. Only brands that can recognise and build their own digital "footprints" and brand experiences, as well as modify their business structures and strategies, will remain relevant in the future. Adjustment can be difficult but also exhilarating. Market-driven and technology-savvy organisations can foresee growth and performance opportunities [8].

## 2. Literature Review

### 2.1. Digital Marketing

Numerous definitions of digital marketing have been developed as a result of extensive research on the subject of internet marketing. [9] defines digital marketing as a projection of traditional marketing, tools, and strategies onto the Internet. Channels, formats, and languages that lead to marketing tools and strategies have developed as a result of the digital world and how it is applied to marketing.

The Digital Marketing Institute (DMI) defines digital marketing as "The use of digital technology to create integrated, targeted, and measurable communications that help to obtain and retain customers while building deeper relationships with customers."

And according to [10] digital marketing is an extension of traditional marketing and utilises contemporary digital channels for product placement, such as music that can be downloaded, and especially for communicating with stakeholders. [11] states that businesses have potential to increase their economic value through engagement with stakeholders, consumers, and employees thanks to digital marketing. Moreover, [12] mentions that to lower the risk of failure, expand their business, and increase profitability, business owners must include digital marketing techniques in their business strategy. Affordable costs, simultaneous targeting of several demographics, comfortable delivery of goods and services, and the ability for customers to readily do product and service research to hasten the decision-making process are all advantages of internet marketing [13] clarifies that digital marketing aids in broadening the marketing mix and a major strong portion of the communication mix. Digital marketing is both a means of communication and a means of dissemination. Studies showed that online buying delivers a different more convenient experience to customers owing to its convenience of use and pleasure it creates,

moreover, it has many significant features like the product presentation and the product qualities.

### 2.2. Email Marketing

From the researches history, e-marketing started in the eighteenth century. E-marketing entails the delivery of goods from suppliers to customers via a digital platform in a variety of methods.

Organizations have recently begun to invest more in e-marketing via social networking sites such as Twitter, YouTube, and Facebook, rather than traditional marketing methods such as television. E-marketing is speedier and less expensive than radio and newspaper advertising.

According to [14] one of the most common methods of electronic communication is the use of email. As confirmed by [15] customers are consistently looking for a real-time interaction with businesses via email, and as technology and usage of email continue to advance, they expect to receive it). Also [16] emphasized that email marketing has become an important communication medium for businesses as they seek to develop closer relationships with their clientele According to [17], approximately 49 percent of emails are opened on a mobile device, and it is anticipated that this percentage will continue to rise in the not too distant future. This demonstrates that e-mails are a form of communication that operates in real time, as recipients can check their messages within a few minutes of receiving them.

It also entails using email to build relationships with prospective customers and/or clients. Email marketing, at its best, helps firms to keep their clients updated while also tailoring their marketing messages to them. Advantages of email marketing include the ability to customise messages for different clients and offer promotions that are consistent with their profile [18], the ability to easily measure the quantity of sent E-mail messages, signed E-mails, and the number of people who have not registered. E-mail marketing is a type of marketing authorization that allows customers to choose whether or not they want to be contacted by e-mail. [19]

On the other Hand, [20] mentioned that E-mail marketing has some drawbacks, as numerous ISPs presently employ complex junk-mail strainers. As a result, there's no guarantee that your emails will reach their intended recipients. In addition, if the addressee does not recognise the sender, it is conceivable that the association E-mail will be deleted. After an E-mail is sent to the customer, there are a lot of E-mails that need to be altered, which might become a flaw of e-mail marketing

And [19] stated that in general, it is difficult to distinguish between invited and uninvited e-mails, especially given the time it takes to search via e-mail. Another flaw in e-mail marketing is that it spreads a lot of software infections, making buyers sceptical of even the most reliable channels and markets

### 2.3. Mobile Marketing

Mobile marketing is a multi-channel digital marketing strategy aimed at reaching a target audience via websites, email, SMS and MMS, social media, and apps on their smartphones, tablets, and/or other mobile devices.

People's interactions with brands are being disrupted by mobile. Everything that a desktop computer can do is now possible on a mobile device. Everything is available through a little mobile device, from opening an email to accessing your website to reading your content. [21]

"Mobile marketing is a set of actions that enable firms to communicate and engage with their audience members through and with any mobile device or network in an interactive and relevant manner," according to the [22]

"All the activities necessary to communicate with the consumer through the use of mobile devices to facilitate the selling of products or services and the distribution of information on those items and services," [23]

Wearable technologies, such as fitness trackers and virtual reality (VR) headsets, have become an extension of mobile devices in recent years. Mobile devices give marketers the ability to target customers based on the customers' temporal, geographical, behavioural, or contextual factors; to personalise the message that is delivered to those customers; and to engage in two-way interactions and touchpoints across a variety of channels. Marketers have the opportunity to capitalise on these one-of-a-kind capabilities for the purpose of improving mobile advertising, promotions, search, and shopping. [24]

## 2.4. Social Media Marketing (SMM)

SMM (Social Media Marketing) is a byproduct of your SEM efforts. It entails using social media sites such as Facebook, Instagram, Twitter, Pinterest, Google+, LinkedIn, and others to drive visitors to your website or business. As previously stated, good content is shared and appreciated. As a result, develop and tailor content for various social media sites. Remember to be prolific and unique; you should interact with users at least four to five times per day. Branding and revenue can both benefit from your social media activities. With the advent of social media, the tools and tactics for connecting with customers have changed dramatically; as a result, businesses must learn how to use social media in a way that is compatible with their business strategy [25]. A consumer must be open to technology in order to construct a successful social media marketing strategy. Internet marketing includes social media marketing. It's a platform that anyone with an internet connection may utilise. Social media marketing is a word that describes the act of generating website traffic or brand exposure through the use of social media networking platforms. Social media marketing is primarily concerned with creating content that is both unique and effective in drawing people's attention. It should also persuade viewers to share it with their friends and family. This sort of marketing is driven by eWoM (electronic word of mouth), which implies earned media rather than purchased media is the consequence. Social media marketing may assist an organisation in achieving a variety of goals. Increasing website activity or traffic, increasing public awareness of their brand, creating a brand image, and positive brand affiliation are just a few of the goals that could be set. It would also aid in improving communication and relationships with potential clients. Although there are numerous social media networking platforms, each social media marketing site will require unique tools, approaches,

and marketing plans. Facebook, Instagram, Twitter, Google+, Pinterest, LinkedIn, YouTube, and others are some of the social media networking platforms or sites that are used for marketing. [26] The Internet and the wider web world have become the most powerful and effective tool for consumers, societies, businesses, and corporations by providing improved communication, social networks, and accessibility to information [27,28].

The term "binding tool" is used to describe the social network because it brings together millions of people from different parts of the world on a single platform. For communicating and exchanging information, some examples that are well-known include Facebook, Twitter, MySpace, Youtube, LinkedIn, Instagram, and blogs; however, there are many others [29,30,31]

According to [32] the social media websites function as dynamic tools that make it easier to maintain online relationships. They are advantageous for customers in terms of the low cost or free marketing, the user-friendliness of the products, and the ease with which customers can get in touch with the company [33].

And according to [34], entrepreneurs are taking advantage of this benefit by determining which promotion channel will yield the greatest return on investment based on their selection of that channel. The acquisition of pertinent information all the way up to sharing behaviour about products and services after purchase has been influenced by social media users' behaviour as consumers.

According to the findings of one study, 25 percent of all consumers were able to share information about products through social media in order to keep other buyers informed about their purchasing experiences [35].

According to the findings of another study that was carried out, social media marketing has been an essential and influential factor for customers who shop online. It was found that 70 percent of consumers visit social media sites to learn useful information regarding products. It was also found that 49 percent of consumers made their purchasing decision on social media sites, and that 60 percent of consumers preferred sharing that information with other users and buyers online. Only seven percent of customers actually went through the buying process and made transactions [36].

This suggests that businesspeople (marketers) need to be aware of the decisions that such customers make and try to anticipate their future requirements and preferences. This idea is supported by [33], who highlight the importance of participation in social networks for both industry leaders and businesses in order to achieve success in online environments. Businesses and corporations place a significant amount of emphasis on the relationship that exists between their brands and their customers. As a result, maintaining a strategic presence online and engaging in conversation with customers is one of the most effective ways to keep customers and build brand loyalty. [37] found that potential customers received a significant amount of value from reading online reviews. Previous studies have shown that even a modest amount of negative feedback can have a significant effect on the decisions and behaviours of consumers when it comes to making purchases [38] other authenticated websites and subsequently boosting domain-level and page-level authentication. For On-page optimization, SEO creates the

advancement of website pages utilizing target keywords in the title, snippets and in the URL. The inclusion of extra terms, semantically identified with the objective keywords, is viewed as a progressed SEO strategy [39] limits our understanding of the distinct impacts of created and curated content, if there are any. First, personalisation is essential to relationship marketing [40]. Social media channels that create content are better equipped at offering personalisation to their audience. Second, when viewed from the perspective of social-exchange theory, relationship marketing's earliest theoretical foundation, both parties have reciprocal obligations. Official Facebook pages provide relevant content, whereas followers engage with and respond to the content. This exchange happens through reciprocity. Reciprocity is essential to relationships and social media facilitate reciprocity [41]. Since curating reflects a limited investment in content, reciprocity dictates that the followers might limit their engagement. Additionally, directed and undirected communications have different impacts. Directed communication is more likely to evoke a response [42]. Content created by social media channels themselves is more likely to be perceived as directed communication. Therefore, the authors propose that content curation will have a negative moderating effect on the impacts that content cues have on the expressions of relationship quality. [43] traces how a business can introduce useful information when exploring customer's expectations as a manner to be beside them during their moment of the purchase decision, and as a result, generate engagement. Despite a considerable amount of content marketing studies and researches, small businesses remain struggling with positioning brands due to a scarcity of tools to develop marketing strategies [44].

## 2.5. Consumer Behavior Decision Process

It's critical to understand how consumers make purchasing decisions. Before, during, and after the purchase of goods or services, the consumer buying decision process refers to the decision-making processes that begin with the consumer to buy things or services in exchange for money in the market [45]. It aids the seller/marketer in the sale of his or her goods or services in the marketplace. If a marketer is successful in understanding consumer behaviour as it relates to the consumer buying decision process for goods or services, then the marketer may be successful in selling those goods or services.

The five steps of the consumer buying decision process include problem detection, information search, alternative evaluation, purchase choice, and post-purchase behaviour. It demonstrates how a customer thinks before purchasing a product. During the decision-making process for a product, the buyer can use all five stages. It's possible that the buyer will skip one or more steps; it all relies on the buyer's mindset. [46]

Every human has a mind that is distinct from that of other humans. Consider a person who buys his or her favourite brand of milk every day when the need arises. As a result, when compared to highly involved items, the possibilities of skipping information and evaluation are higher. Essentially, it is determined by human nature.

However, in the case of purchasing a car, where there is a high level of involvement.

When a customer goes to buy an automobile, he or she cannot skip any of the five steps. [46] This method is particularly effective for new purchases or purchases with a high level of consumer interaction. Some businesses strive to comprehend the consumer's experience while learning about, selecting, using, and discarding of a product. [47]

The customer buying decision-making process is depicted in detail in Figure 1



Figure 1. Consumer Buying Decision Process

### 2.5.1. Need Recognition

Is the initial step in the customer decision-making process. "Problem recognition" is another name for it. It begins with the most basic requirements of air, water, food, and shelter. It could also begin with a step ahead of minimum requirements [46,47]. The company should recognise the needs of its customers and work to meet them [48]. Companies can identify a consumer's demand and develop marketing tactics based on this information [46,47].

When a consumer is confronted with either internal stimuli (such as hunger) or external stimuli (such as advertisements), they become aware that there is a gap between their current state and the state that they want to be in [49]. This is generally considered to be the catalyst that starts the process of making a decision to make a purchase, and it is the forerunner of all subsequent consumer-initiated activities such as searching for information, evaluating products, and making a purchase. There are a lot of different personal characteristics that can influence the decisions that lead to the necessity of making a purchase. To be more specific, the development of the second type of customer need plays a significant part in the process of customer impulse shopping. As a result, retailers make an effort to develop a "need" in the minds of customers for the goods and services that they are selling. For instance, "imposed needs" in a retail environment might include the "need" to stay refreshed and energised by consuming a variety of soft drinks and energy drinks sold by retailers, as well as the "need" to follow fashion trends by purchasing particular items sold



by retailers. The activation of need can be caused by either internal or external stimulants [50]. Therefore, the first step is to evaluate the scope of the issue or the significance of the requirement [51].

For instance, if a person is hungry, eating is their need; however, eating delicious food may satisfy their cravings. As a consequence of this, the company should place its primary emphasis on catering to the requirements of its clientele.

### **2.5.2. The Information Search**

Is the second step in the decision-making process for customers, which is where. Consumers require knowledge and information due to the fact that similar products can satisfy their requirements in a variety of ways [52]. When a consumer goes to the market to BUY goods or services, he or she recalls his or her previous thoughts about the product; if the previous experience was positive or good, and the consumer was satisfied, the consumer purchases the product, and the quest for knowledge comes to an end. However, if the consumer has had a bad or unfavourable experience in the past, he or she will start looking for information on that product. When a consumer wants to try a new product, he or she also looks up product information [53]. During this stage, the consumer begins to look for information on the product from a variety of sources. "Consumers can acquire information from a variety of sources," according to Kotler. Personal sources (family, friends, neighbours, acquaintances), commercial sources (advertising, salespeople, dealer and manufacturer, web and mobile sites, packaging, displays), public sources (mass media, consumer rating organisations, social media, online searchers and peer reviews), and experimental sources (examining and using the product) are among them." [46]. For example, if a person wants to buy a smartphone, he will pay more attention to smartphone advertisements, seek advice from family or friends, and receive regular updates on the smartphone.

### **2.5.3. Evaluation of Alternatives**

The third step of the purchasing decision-making process for consumers. It comes after the second stage of the purchase decision-making process, which is the information search. When a consumer gathers information about a product or a brand, the consumer ranks the product or brand before evaluating it. For example, if a consumer wants to buy a car, he or she will gather information on the automobile brand, then compare the preferred brand to the alternatives.

The information that was gathered was used to eliminate some of the possibilities [54]. Because they are confident in their interpretation, certain customers do not immediately evaluate and buy products. Collecting information about a person's personality in order to improve a product or service will have an effect on both the schedule and the price [55]. A consideration of either goods or services is a customer's recall or evoked collection of those goods or services. The client-evoked collections are typically modest and consistent [54]. It is tough to comprehend customer behaviour, but marketers concentrate on a few steps, such as the consumer's desire to fulfil his or her needs and wants, and the consumer's

desire to gain additional benefits from a specific brand [47]. Companies who understand the consumer evaluation process will be able to benefit from the consumer evaluation of alternatives process.

### **2.5.4. Purchase Decision**

Is the fourth stage of the purchasing decision-making process for consumers. After gathering information from a variety of sources, evaluating it, and deciding where and what to buy, the customer has made the decision to buy a product. Consumers buy the brand or product that has the highest rating during the evaluation process. The surrounding environment has an impact on the purchase decision.

There is a range of prices that customers are willing to pay for products that meet their needs [54]. The opinions of other people as well as unforeseeable environmental factors can influence a person's intention to make a purchase. Customers are simple to persuade and change their minds about their purchasing decisions when important or similar people are involved. Unanticipated situational variables include things like prices and the benefits of products or services.

### **2.5.5. Post-Purchase Evaluation**

Is the fifth and last stage of the consumer purchasing decision-making process is the post-purchase decision. After the fact, customers are given the opportunity to rate how satisfied they are with their purchases [54]. Satisfied customers are the engine that drives both market preferences and output [55]. Customers are more likely to make subsequent purchases when their expectations are not only met but also exceeded [54].

When a customer purchases a product, the company's effort does not end. Companies should be aware of their customers' attitudes toward their products. The customer may be satisfied or dissatisfied after using the goods. If a customer is content, they are more likely to buy more of the same thing in the future, and a happy customer can also persuade others to buy the product. The possibilities of building consumer loyalty to the product are greatest, and if the consumer becomes devoted to the product, the satisfied consumer's chances of keeping the product are greatest. If the customer keeps the product, the sales of the product increase, and if the sales of the product increase, the company's overall goal of profit is met. The problem emerges when the customer is dissatisfied with the company's product. A customer may be unhappy for a variety of reasons. The consumer may be unhappy if the company promises something but fails to deliver. For example, if a car manufacturer promises free services to a customer but then refuses to provide them, the consumer's unhappiness will rise. This is only one example [56].

## **2.6. Modern Trade**

Chains or groups of enterprises make up modern commerce outlets. Hypermarkets, supermarket chains, and mini-markets are among the bigger players. Retail operations are better planned, and inventory management, merchandising, and logistics management are all handled in a more organised manner [56].

Modern trade is still in its infancy in emerging markets, particularly in some of Africa's and Asia's less developed economies. In most markets, the numerous traditional trade outlets remain the most important segment — and the outlet base is frequently unstable, with new stores opening and closing. Traditional trade servicing presents a number of challenges for businesses, and the fragmented nature of these outlets makes it costly and time-consuming.

### 3. Research Problem

Rapid technological advancement, economic globalisation, and a variety of other external variables have influenced marketing and customer behaviour [57]. Technology, logistics, payments, and trust advancements, together with increased internet and mobile access and customer desire for convenience, have created a US\$1.9 trillion global online shopping arena, where millions of people literally 'are' shopping — at any time and from anywhere [3].

Over the last decade, consumer shopping behaviours have shifted. The use of digital technology for research, browsing, and purchasing has progressed from niche or intermittent to widespread [58]. The impact of digital technologies on the shopping experience is driving the transformation. Companies must modify their attitudes toward consumers as a result of technology advancements [59].

Today's consumer behaves differently and has higher expectations of various items and businesses. Changes in customer behaviour necessitate businesses and organisations always refining their digital strategies. As businesses fight for consumer attention in an online, mobile environment, digital marketing is becoming increasingly vital.

One of today's primary marketing trends is a focus on using the Internet and social media to promote the firm and its products [60] consumer buying behaviour, but only a small amount of research has been conducted in Egypt to examine the impact of digital marketing on consumer buying behaviour.

The goal of this study was to fill a knowledge vacuum by identifying digital marketing and assessing its impact on customer behaviour in Egypt's modern trade sector.

### 4. Research Aims and Objectives

The general objective of this study is to analyze the effect of Digital Marketing on Consumer buying behavior towards the purchase of FMCGs (Fast moving consumer goods) in the modern trade sector (Hypermarkets, supermarket chains, and mini-markets) [56] in Egypt from a consumer standpoint.

Specifically, the study also aims to:

1. Examine the various digital marketing platforms in Egypt that could influence consumer behavior.
2. Identify the categories of products that consumers buy on digital media platforms.
3. Analyze the influence of digital marketing on consumer behavior.

### 5. Research Hypothesis

The following Hypothesis were derived from above literature and theoretical review:

H0: There is no positive impact of Digital marketing Channels on the Consumer buying Decision process.

H01: There is no positive impact of E-mail Marketing on the Consumer buying Decision process.

H02: There is no positive impact of Mobile Marketing on the Consumer buying Decision process.

H03: There is no positive impact of Social Media Marketing on the Consumer buying Decision process.

### 6. Research Model

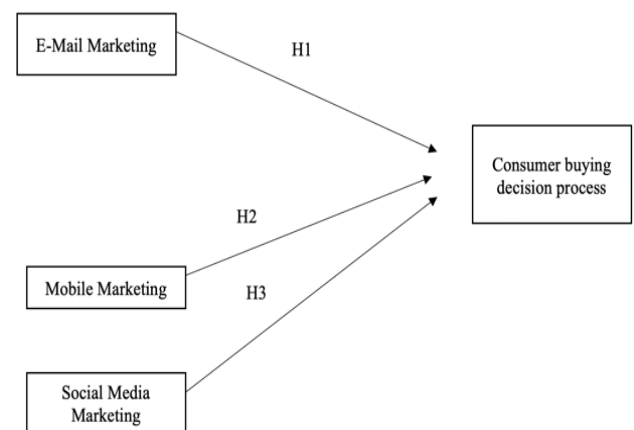


Figure 2. Research Model

### 7. Research Scope

To analyze the effect of digital marketing on consumer behavior, probability sampling technique will be used for data collection and both primary and secondary data will be collected. Primary data will be collected through structured questionnaire from 275 respondents and will be closed ended.

Questionnaire constructs were adopted from various relevant existing literature. All variables of the questionnaire were measured using five-point Likert scales (5, strongly agree; 1, strongly disagree)

The questionnaire was designed using online survey tool Google forms and distributed via digital media channels including Emails, WhatsApp, Facebook, Instagram, Twitter, LinkedIn and Skype.

The targeted respondents will possess certain characteristics since probability random sampling method will be used during data collection. These characteristics will include respondents who have access to internet (both mobile and computer) and knowledge about digital marketing.

The population considered for the study are users males and females from 18 years to 65 years in the geography of Egypt, the data was collected using purposive sampling, since purposive sampling gives researcher the liberty to choose the respondents for their study. Purposive sampling is considered to be representation of the population qualitatively. The descriptive frequencies

analysis was performed on the general background information of the respondents with the use of the SPSS V26. Out of the total of 275 respondents (67.7%) were female whereas respondents (32.3%) male.

## 8. Data Analysis

The analysis was done using the statistical package for social sciences (SPSS V26) for both descriptive and inferential statistics, and (SmartPLS 3.2.7) for SEM-PLS modeling. Section one provides a preliminary data analysis which includes screening for missing data, finding outliers, testing data normality, and investigating common method bias. Some descriptive statistics and relative importance index for ranking items were presented in section two. Finally, in section three, the application of PLS-SEM is presented in the following stages: specifying the structural model, specifying the measurement model, data collection and examination, path model estimation, assessing the measurement model, assessing the structural model, and interpretation of the results and finally drawing conclusions.

### 8.1. Data Preliminary Examination

This examination is essential in quantitative research [61]. Reference [62] stated that the collected data should be screened and cleaned from errors and incomplete answers. Even though the corrective actions are not always necessary, the examination is essential to ensure that the outputs of the statistical analysis are correct [63]. Reference [61] emphasizes that the issues of collected data, including strange response patterns, unengaged respondents, missing data, outliers, and data distribution, should be inspected. Therefore, those primary data issues are examined in the subsequent steps using SPSS.

#### 8.1.1. Missing Data

Missing data is a common problem in behavioral [64], marketing [65], and social science studies [61]. It is sporadic when researchers do not face missing data problems [63]. Missing data arise when participants leave one or more questions unanswered in the questionnaire [66]. Missing data is a problem that reduces the available data for analysis and might produce erroneous findings that lead to bias in the results [63]. The effect of missing data is especially essential when using the SEM-PLS technique for data analysis [61] as it is not designed to analyze incomplete data [67,68]. Moreover, the Bootstrapping function, used for examining the relationships between constructs in Smart PLS, cannot be calculated when the sample includes missing data. The data collected in this study have no any missing values, so we continue to investigate other issues.

#### 8.1.2. Outliers

A typical example of unreasonable answers is outliers, which occurs when one or more responses were excessively different from other responses [66]. Reference [63] defined outliers as cases with unusual values (either too low or too high values) that make these cases distinct

from other cases. Outliers can affect the data validity [69], impact the data distribution [63], and bias statistical tests [70]. In summary, outliers affect the normality of data distribution, and it was therefore imperative to examine the dataset for the existence of such outliers before being subjected to parametric analysis. Therefore, it is crucial to detect and handle outliers. Univariate detection of outliers entails identifying the cases with variable values that are either extremely low or extremely high [65]. This type of outliers can be identified using minimum and maximum values (Sekaran & Bougie, 2016). By doing so, there are no outliers detected; see Table 3.

#### 8.1.3. Normality

Normality refers to the data distribution of a single variable [70]. The normality test is one of the first measures required to verify that the data collected are appropriate for statistical data analysis. In terms of measuring normality, researchers [61,71].

Reference [61] recommended using two values to measure the shape of data distribution: Skewness and kurtosis. The values for skewness between -2 to +2 and Skewness between -7 and +7 are considered acceptable in order to prove normal distribution [63,72]. The results of the normality test in the Table 1 show that the values of Skewness and kurtosis for the constructs of the model were within the specified range.

Table 1. Normality diagnostics

Construct	Symbol	Skewness	Kurtosis	Remark
E-Mail Marketing	X1	-0.553	-0.114	Normality assumption attained
Mobile Marketing	X2	-0.669	0.619	
Social Media Marketing	X3	-0.306	0.168	
Consumer buying decision process	X4	-0.68	1.397	

#### 8.1.4. Common Method Bias Test

Common method bias occurs when the collected responses are results of the design of the instrument rather than a reflection of the participants' perspectives. Method bias is a measurement error that affects the validity of the findings of the study [73]. Method bias can be detected through running Harman's single-factor test, which is commonly used by researchers. This test is conducted through loading all of the variables into an exploratory factor analysis and examining the results of an un-rotated factor analysis while placing a constraint to extract one factor only. The percentage of the factor's explained variance determines whether the bias is present or not. If the total variance of the first factor is less than 50%, then the common method bias does not affect the data. The percentage of the factor's explained variance determines whether the bias is present or not.

The aforementioned method was followed to test the data for common bias method. Table 2. presents the results of the test, which indicate that the common method bias does not affect the data since the total variance of the factor is about 21.789% which is less than the 50% threshold.

Table 2. Results of Harman's single-factor test

Component	Total Variance Explained					
	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	3.486	21.789	21.789	3.486	21.789	21.789
2	1.731	10.820	32.608			
3	1.422	8.889	41.498			
4	1.293	8.080	49.577			
5	1.071	6.694	56.271			
6	0.924	5.772	62.043			
7	0.857	5.354	67.397			
8	0.845	5.284	72.681			
9	0.752	4.702	77.383			
10	0.722	4.513	81.896			
11	0.647	4.042	85.938			
12	0.586	3.665	89.603			
13	0.501	3.132	92.735			
14	0.418	2.612	95.347			
15	0.401	2.507	97.854			
16	0.343	2.146	100.000			
Extraction Method: Principal Component Analysis.						
Remark: No problem exists						

## 8.2. Relative Importance Index

Relative Importance Index (RII) is used to determine the relative importance of quality factors involved. The results of relative importance index are reported in Table 3 along with the corresponding ranking and their importance level.

According to Chen et al. (2010), the importance levels from the relative importance index are derived as in Table 4.

It is evident from the ranking table that two items were identified as "High" importance levels which are

considered of prime importance for the selection of its constructs. These "High" importance indicators have RII equal 0.856 and 0.802 for *Decision 2* and *Decision 1* respectively. The results also shows that thirteen items were identified as "High-Medium" importance levels which are considered of second importance for the selection of its constructs. These "High-Medium" importance indicators have RII in the range of 0.796–0.664. Finally, one item was identified as "Medium" importance level which is considered of third importance for the selection of its constructs. This "Medium" importance indicator has RII of 0.574.

Table 3. Descriptive statistics and ranking criteria for the selection of items

Construct	Item	Min	Max	Mean	SD	RII	Rankingby category	Overallranking	Importancelevel
E-Mail Marketing	EMail1	1	5	3.32	1.11	0.664	3	15	H-M
	EMail2	1	5	3.42	1.045	0.684	2	13	H-M
	EMail3	1	5	3.98	0.881	0.796	1	3	H-M
Mobile Marketing	Mobile1	1	5	3.69	1.055	0.738	2	8	H-M
	Mobile2	1	5	3.54	1.029	0.708	3	11	H-M
	Mobile3	1	5	3.9	0.98	0.780	1	5	H-M
Social Media Marketing	Social1	1	5	3.72	0.908	0.744	1	6	H-M
	Social2	1	5	3.51	0.953	0.702	4	12	H-M
	Social3	1	5	3.63	1.121	0.726	2	9	H-M
	Social4	1	5	3.6	1.053	0.720	3	10	H-M
Consumerbuying decision process	Decision1	1	5	4.01	0.856	0.802	2	2	H
	Decision2	1	5	4.28	0.815	0.856	1	1	H
	Decision3	1	5	3.39	1.142	0.678	5	14	H-M
	Decision4	1	5	3.72	1.011	0.744	4	6	H-M
	Decision5	1	5	2.87	1.175	0.574	6	16	M
	Decision6	1	5	3.95	0.876	0.790	3	4	H-M

Table 4. Importance Levels

Importance Levels	Abbreviation	Range
High	H	$0.8 < RII < 1.0$
High-Medium	H-M	$0.6 < RII < 0.8$
Medium	M	$0.4 < RII < 0.6$
Medium-Low	M-L	$0.2 < RII < 0.4$
Low	L	$0.0 < RII < 0.2$



### 8.3. Structural Equation Modeling

In this study, the researcher has applied structural equation modeling (SEM) for the model analysis. The SEM is a broad strategy to test hypotheses and to find out the relationship between exogenous and endogenous variables. Partial Least Square analysis of SEM (PLS-SEM) is followed in this study. The literature suggests that the PLS method is suitable for studies involving more realistic settings in social science research [86]. Hence, this study focuses on examining the prediction of the dependent variable, and the emphasis is on explaining the endogenous constructs. The following sections will illustrate the application of PLS-SEM in seven stages as identified by [61].

Figure 3 shows the stages for applying PLS-SEM. The first stage is concerned with specifying the structural model, while the second stage is about defining the measurement models, and the third stage focuses on collecting and examining the data. These three stages have been previously implemented. The fourth stage involves PLS path model estimation, while the fifth stage requires the assessment of the measurement model's results. The sixth stage is for assessing the results of the structural model. The final stage is making final interpretations of the results and conclusions.

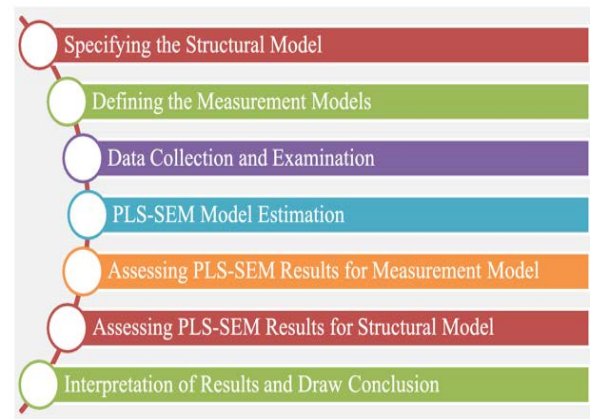


Figure 3. A Systematic Procedure for Applying PLS-SEM

### 8.3. Internal Consistency Reliability

The internal consistency reliability examines whether all of the indicators associated with a construct are actually measuring it [74]. There are different ways to measure the internal consistency. Cronbach's alpha is a statistical measure that is the most commonly used for this purpose.

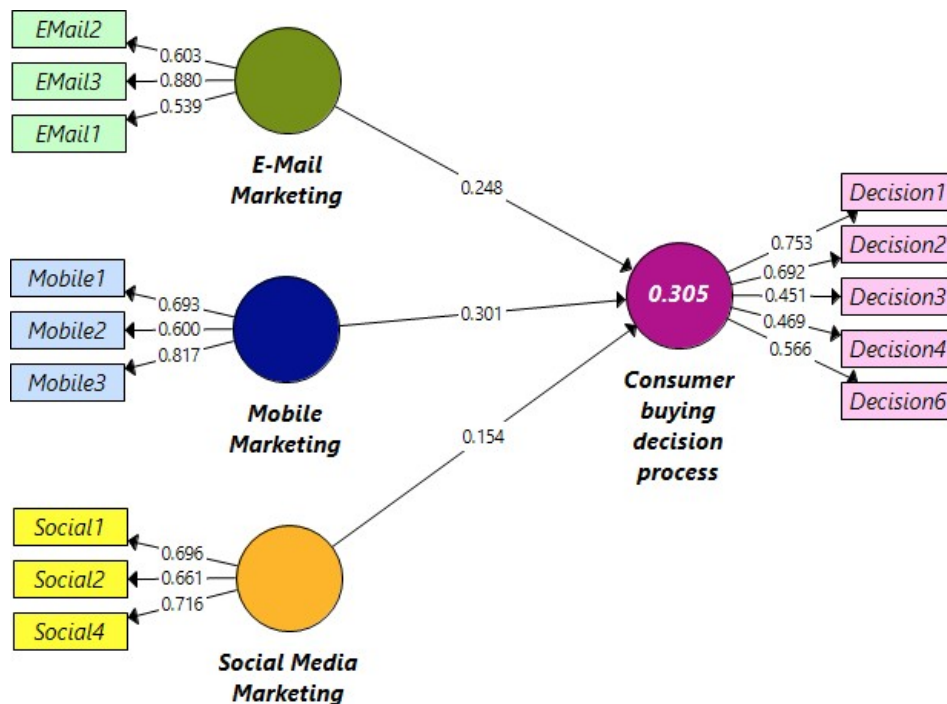


Figure 4. Measurement model (factor loadings)

Due to the limitations of Cronbach's alpha, researchers are advised to use other measures of internal consistency such as composite reliability (CR). CR measures the internal consistency while considering that each indicator has a different outer loading.

Table 5. Reliability of measurement model analysis

Construct	Composite Reliability	Remark
Consumer buying decision process	0.728	Reliability attained
E-Mail Marketing	0.722	
Mobile Marketing	0.749	
Social Media Marketing	0.733	

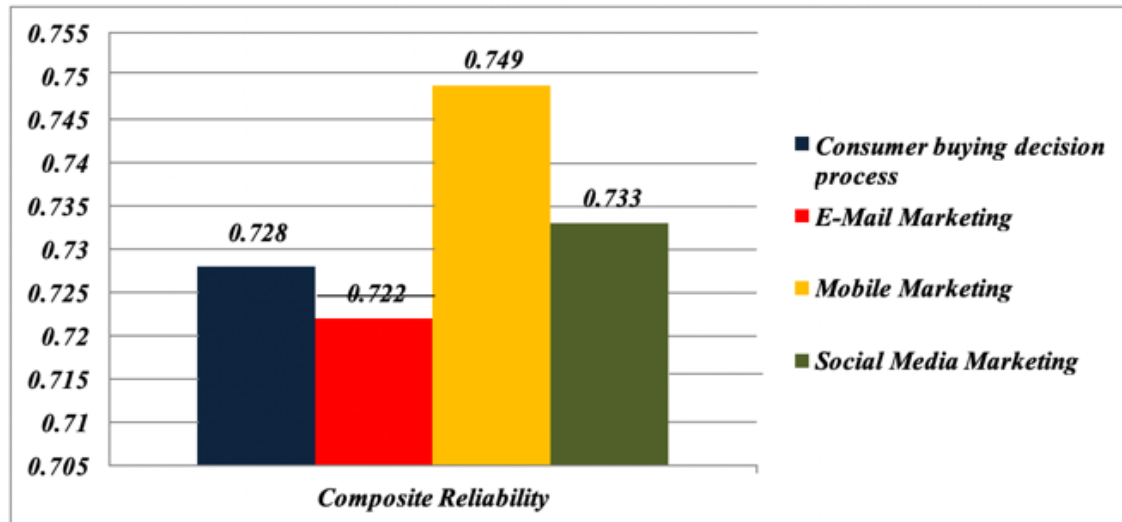


Figure 5. Composite reliability

The results in Table 5 and Figure 5 show that all constructs had a CR score of more than 0.70 [61].

Those findings provide evidence of the high reliability and sufficient internal consistency of the constructs.

#### 8.4. Convergent Validity

The convergent validity evaluates the correlation between the variables that measure one construct. It is usually evaluated using the outer loadings of the items and the average variance extracted (AVE). The AVE is a common measure used to establish convergent validity which represents the grand mean of the squared loadings of the indicators measuring a construct. The AVE of a construct should be 0.50 or higher to be considered significant. However, AVE values below 0.5 are also acceptable if CR values are greater than 0.6 [75]. Following the previous guidelines, the convergent validity through AVE was established as shown in Table 6 and Figure 6.

Table 6. Convergent validity (AVE)

Construct	Average Variance Extracted (AVE)	Remark
Consumer buying decision process	0.358	Acceptable
E-Mail Marketing	0.476	
Mobile Marketing	0.503	
Social Media Marketing	0.478	

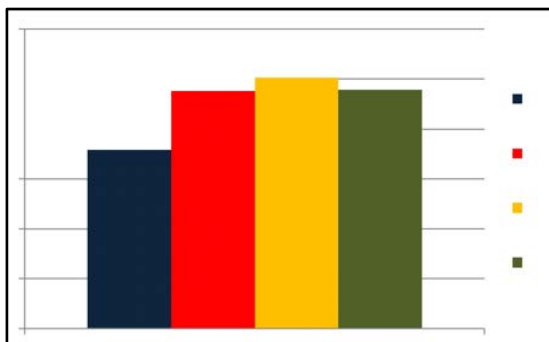


Figure 6. Average Variance Exteracted

Item loading or what so called outer loading in Smart PLS is another measure of reliability, the outer loadings required is 0.70 [61]. The reason behind specifying that the outer loading should be at least 0.70 is because the square of a standardized item's outer loadings, which is also known as communality, indicates how much variance is shared between the construct and the item. The square of 0.70 will approximately equal to 0.50. This means that if an item has an outer loading of 0.70, the construct can explain about 50% of the item's variance [61]. However, the authors suggested if the outer loading is between 0.4-0.7; we should analyze the impact of indicator deletion on internal consistency reliability. If deletion does not increase measure(s) above threshold, we should retain the reflective indicator. Two items (Social3 & Decision5) were removed because it has loading below 0.4, and all other items were retained.

Table 7. Convergent validity (Item Loading)

	E-Mail Marketing	Mobile Marketing	Social Media Marketing	Consumer buying decision process
EMail1	0.539			
EMail2	0.603			
EMail3	0.88			
Mobile1		0.693		
Mobile2		0.6		
Mobile3		0.817		
Social1			0.696	
Social2			0.661	
Social3			Deleted	
Social4			0.716	
Decision1				0.753
Decision2				0.692
Decision3				0.451
Decision4				0.469
Decision5				Deleted
Decision6				0.566

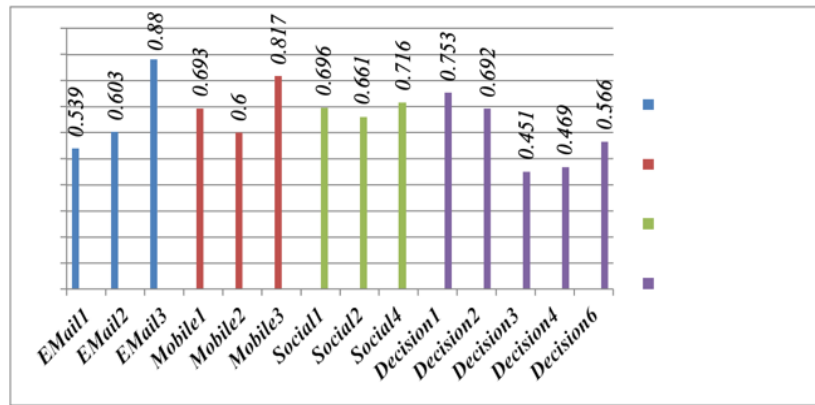


Figure 7. Items Loading

### 8.5. Discriminant Validity

After establishing the convergent validity, it is time to examine the discriminant validity, which examines how much a construct differs from other constructs. Discriminant validity is usually established by examining Fornell-Larcker criterion that ensures that the indicator only loads highly on the construct it is associated with. It is common to have an indicator loading to different constructs; however, it is crucial that the indicator's loading on its associated construct is higher than its correlation with other constructs. When using the Fornell-Larcker criterion, the square root of AVE is compared against the construct's correlations. The square root of the construct's AVE should be higher than any of the construct's correlations with other constructs. Following these guides, the discriminant validity was constructed since the square root values of the construct's AVE were higher than any of the construct's correlations with other constructs as in Table 8.

Another criterion that some researchers assess is the Hetrotrait-Monotrait ratio (HTMT). HTMT is "the ratio of

the between-trait correlations to the within traits correlations" [61]. The HTMT value should be lower than 0.90 [76]. Moreover, all of the constructs have HTMT values less than the defined threshold as in Table 9.

### 8.6. Descriptive Statistics and Multiple Correlations

After establishing the reliability and validity of the variables, it's time to provide some descriptive statistics and multiple correlations between the selected constructs. These include; Pearson correlation coefficient, mean (M), standard deviation (SD), and coefficient of variation (CV) were calculated and reported in Table 10.

The Pearson product-moment correlation coefficient was calculated to determine the strength and the direction of the relationship between the dependent and independent variables. Table 10 shows the matrix of Pearson correlation coefficients between all variables in the study. The correlation coefficients suggest that there is a statistically significant positive correlation among all variables.

Table 8. Discriminant Validity (Fornell-Larcker criterion)

Construct	Consumer buyingdecision process	E-Mail Marketing	Mobile Marketing	Social MediaMarketing
Consumer buyingdecision process	0.598			
E-Mail Marketing	0.436	0.69		
Mobile Marketing	0.481	0.486	0.709	
Social Media Marketing	0.337	0.27	0.385	0.691

Table 9. Discriminant Validity (HTMT Values)

Construct	Consumer buyingdecision process	E-Mail Marketing	Mobile Marketing
E-Mail Marketing	0.603		
Mobile Marketing	0.8	0.786	
Social Media Marketing	0.652	0.529	0.871

Table 10. Descriptive statistics and bivariate correlation

	E-Mail Marketing	Mobile Marketing	Social MediaMarketing	Consumer buyingdecision process
E-Mail Marketing	1	.437***	.281***	.315***
Mobile Marketing		1	.448***	.427***
Social Media Marketing			1	.344***
Consumer buyingdecision process				1
Mean	3.573	3.708	3.609	3.868
SD	0.760	0.743	0.676	0.547
CV	21.28%	20.03%	18.72%	14.13%

\*\*\* All correlations were significant at 0.001 level of significant.

**Table 11. Structural Model Assessment**

Criteria	Guidelines	References
Collinearity	VIF < 5	(Hair, Hult, Ringle, & Sarstedt, 2017)
Path coefficients	Significance: $p \leq 0.05$	(Hair, Hult, Ringle, & Sarstedt, 2017)
Coefficient of determination ( $R^2$ )	Weak effect: $R^2 = 0.19$ Moderate effect: $R^2 = 0.33$ High effect: $R^2 = 0.67$	(Chin, 1998)
Effect Size ( $f^2$ )	$f^2$ between 0.02-0.14, small; $f^2$ between 0.15-0.34, moderate; $f^2 \geq 0.35$ , High.	Cohen (1988)
Cross-validated redundancy ( $Q^2$ )	Predictive Relevance Using blindfolding $Q^2 > 0$	(Chin, 1998)
Goodness of Fit (GoF)	GoF less than 0.1, no fit; GoF between 0.1 to 0.25, small; GoF between 0.25 to 0.36, medium; GoF above 0.36, large.	(Wetzels, Odekerken-Schröder, & Van Oppen, 2009)

## 8.7. Collinearity

Collinearity occurs when there is a high correlation between two constructs, which produces interpretation issues [61]. If more than two constructs are involved, it refers to collinearity or multicollinearity. Collinearity can be assessed using the variance inflation factor (VIF), which is obtained by dividing one by tolerance referring to the variance explained by one independent construct not explained by the other independent constructs [61,77]. A VIF value of 5 or higher indicates a high collinearity [61,78]. Table 12 shows that; all VIF values were below the cut-off point providing evidence that the collinearity between exogenous constructs does not exist.

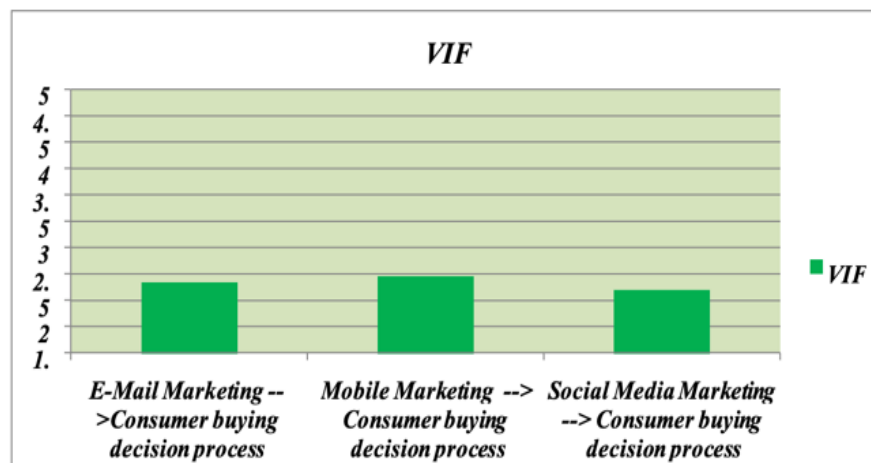
## 8.8. Path Coefficients

Path coefficients refer to the estimates of the relationships between the model's constructs [79].

Those coefficients range from +1 to -1, where +1 means a strong positive relationship, 0 means a weak or non-existence relationship, and -1 means a strong negative relationship [80]. When assessing PLS path, studies should report path coefficients beside the significance level, t-value, and p-value [81]. The hypothesis testing has been done to understand the signs, size, and statistical significance of the estimated path coefficients between the constructs. Higher path coefficients suggest stronger effects between the predictor and predicted variables. The significance of the supposed relationships has been established by measuring the significance of the p-values for each path with threshold  $p < 0.05$ ,  $p < 0.01$ ,  $p < 0.001$  be used to assess the significance of the path coefficient estimations [61,85]. Later, the inferences have been drawn for all hypotheses based on the significance of p-values at the above-mentioned conventional levels. The p-values and inference of hypotheses as well as the confidence level for each estimate, are shown in Table 13.

**Table 12. Variance inflation factors**

Relationship	VIF	Remark
E-Mail Marketing --> Consumer buying decision process	1.323	No problem exists
Mobile Marketing --> Consumer buying decision process	1.44	
Social Media Marketing --> Consumer buying decision process	1.187	

**Figure 7. Variance inflation factors****Table 13. Results of Hypothesis testing**

Path	B	t-value	P-value	95% CL for B		Remark
				LL	UL	
H1: E-Mail Marketing -> Consumer buying decision process	0.248	3.438	0.001***	0.098	0.388	Supported
H2: Mobile Marketing -> Consumer buying decision process	0.301	4.164	0.000***	0.141	0.427	Supported
H3: Social Media Marketing -> Consumer buying decision process	0.154	2.632	0.009**	0.03	0.258	Supported

\*\*\* P < 0.001; \*\* P < 0.01; LL= Lower Limit; UL= Upper Limit; CI= Confidence Interval.



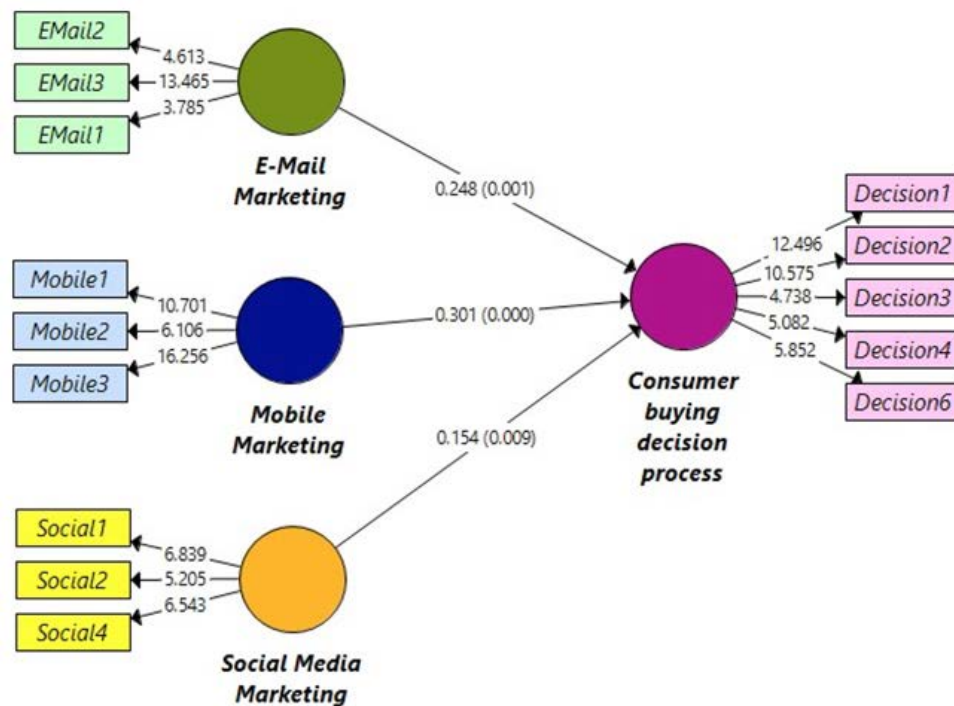


Figure 8. Structural model (Path coefficients and P-v

The results of hypothesis testing in Table 13 and Figure 8 showed that E-Mail Marketing construct yielded a significant direct positive effect on Consumer buying decision process since ( $\beta = 0.248$ ,  $t = 3.438$ ,  $P < 0.001$ , 95% CI for  $\beta = [0.098, 0.388]$ ), consequently, the first hypothesis is confirmed. Moreover, Mobile Marketing construct yielded a significant direct positive effect on Consumer buying decision process since ( $\beta = 0.301$ ,  $t = 4.164$ ,  $P < 0.001$ , 95% CI for  $\beta = [0.141, 0.427]$ ), consequently, the second hypothesis is confirmed. Furthermore, Social Media Marketing construct yielded a significant direct positive effect on Consumer buying decision process since ( $\beta = 0.154$ ,  $t = 2.632$ ,  $P < 0.01$ , 95% CI for  $\beta = [0.03, 0.258]$ ), consequently, the third hypothesis is confirmed.

## 8.9. Coefficient of Determination

Coefficient of determination ( $R^2$ ) refers to the effect of independent variables on the dependent latent variables, [81] which is one of the quality measures of the structural model [63].  $R^2$  estimates vary from 0 to 1, in which 0 means low explained variance and 1 means high explained variance. Researchers have used a different cut-off of  $R^2$  value. For example, in business research, Reference [82] suggested that  $R^2$  with 0.19, 0.33, or 0.67 are low, moderate, or high, respectively.

Table 14. R Square and Associated R Square Adjusted

Construct	R Square	R Square Adjusted
Consumer buying decision process	0.305	0.297

The results of R Square are reported in Table 14 and Figure 9. The R-Square value equals  $R^2 = 0.305$  meaning that about 31% of the variations in Consumer buying

decision process were explained by the variation in the exogenous variables, i.e. E-mail marketing, mobile marketing, and social media marketing.

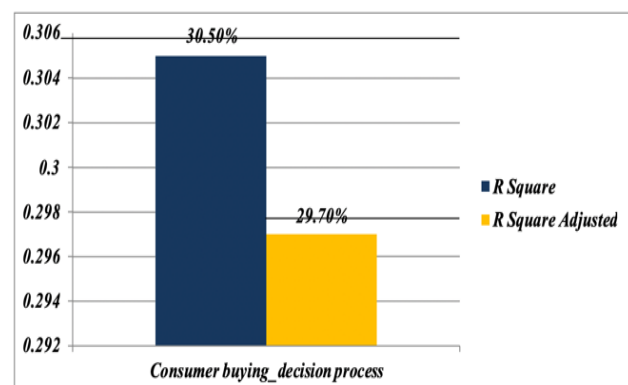


Figure 9. R Square Values

## 8.10. Effect Size ( $f^2$ )

The  $f^2$  effect size is the measure of how much impact the endogenous construct will have if an exogenous construct was removed from the model. A construct is considered to have a small effect if its  $f^2$  value is between 0.02 and 0.14, while it is considered to have a medium effect if its  $f^2$  value is between 0.15 and 0.34, and a large effect if its  $f^2$  value  $\geq 0.35$ . A construct with an  $f^2$  value  $< 0.02$  means it has no effect on the endogenous construct (Hair et al., 2017).

Table 15 presents the  $f^2$  effect size of the constructs. The results illustrate that E-Mail Marketing with  $f^2 = 0.067$ , Mobile Marketing with  $f^2 = 0.091$ , and Social Media Marketing  $f^2 = 0.029$  have small effect on Consumer buying decision process.

Table 15.  $f^2$  Effect Size

Relationship	f-square	Remark
E-Mail Marketing --> Consumer buying decision process	0.067	Acceptable
Mobile Marketing --> Consumer buying decision process	0.091	
Social Media Marketing --> Consumer buying decision process	0.029	

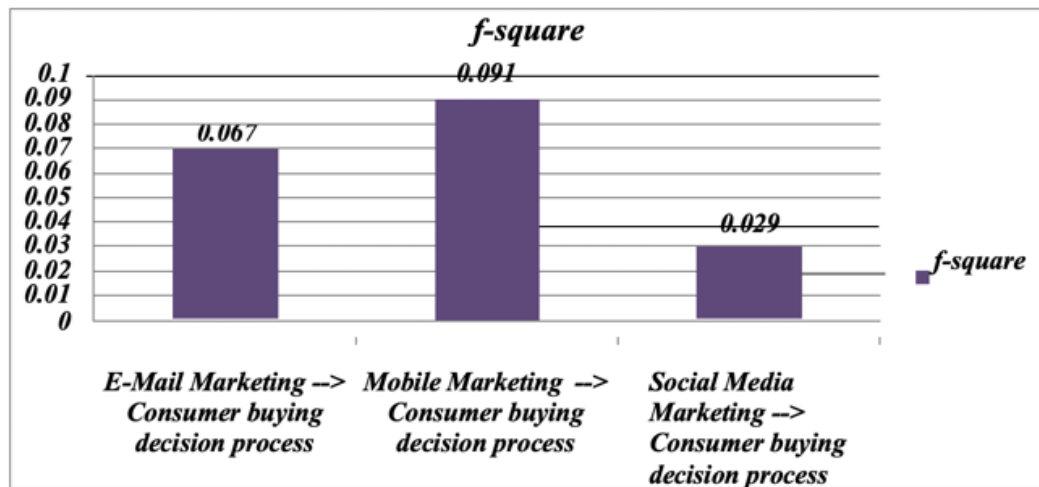


Figure 10. Effect Size

### 8.11. Goodness of Fit of the Model

[83], proposed the Goodness of Fit (GoF) as a global fit indicator; it is the geometric mean of both the average  $R^2$  the average variance extracted of the endogenous variables. The aim of GoF's is to take into consideration the research model at all stages, i.e. the measurement model and the structural model, with an emphasis on the overall model performance [84]. The GoF index for the main hypothesis can be calculated as follow:

$$GOF = \sqrt{R^2 \times AVE} = \sqrt{0.305 \times 0.45375} = 0.372.$$

The criteria of GoF for deciding whether GoF values are not acceptable, small, moderate, or high to be regarded as a globally appropriate PLS model shown in Table 11. According to these criteria, and the value of (GoF=0.372), it can be safely concluded that the GoF model has a higher level of fit to considered as sufficient valid global PLS model.

## 9. Conclusion

The purpose of this section was to discuss the findings within the context of the present research. This research empirically examines digital marketing channels (E-mail Marketing, Mobile Marketing, and Social Media Marketing) for marketers. It analyzes the impact of these channels on the consumer buying decision process in the Modern trade sector in the Egyptian market.

Research was conducted through an online questionnaire. The questionnaires were distributed based on a simple sampling method and collected in the Egyptian market. 275 questionnaires were distributed and 275 usable samples that were obtained, yielding 100% response rate from those who agreed to participate.

In order to find out the answers to research questions a list of hypotheses were developed by using the available literature on the mentioned constructs. All the hypotheses developed and incorporated in the framework were derived from the preceding literature and established inferences for the potential research. The SPSS and SmartPLS were used to analyze the data and to test the hypotheses. The independent predictor variables were found significantly affecting the dependent variable and as a result, all hypotheses proposed in this study were supported.

In conclusion, we were able to verify the three hypotheses in the Egyptian market; our results indicate that between the independent variables; mobile marketing has greater impact on consumer buying decision process, then E-mail marketing and social media marketing respectively.

## 10. Implications for Marketing Managers

Marketing managers need to know who their digital customers are as buyers and how their behaviour has changed. These customers have a lot of different qualities, and their buying habits have changed to include digital. The post-purchase decision will change the business in a way that turns a customer into a loyal customer who sticks with the brand. Customer service is very important here. Marketing managers should be forced to come up with ways to keep customers by fixing their problems.

The last piece of advice I'd give to marketing managers is to use a method that lets customers choose over time. Customers will decide to buy a product before going to the store to buy it because of the digital environment. So, the store environment has the least effect on a customer's decision to buy. In the end, businesses have to come up with ways to reach customers at the times when they are most likely to make a decision.

## 11. Future Research Recommendations

In the future, more research could be done that takes into account the extra factors in digital marketing and other channels. It can be compared to the results of this study to see if there are any differences. In the future, research can be done on different industries in different markets, as well as on specific companies and customers.

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## Appendix

**Table A.1. Frequencies and percentages for the selected items**

	1		2		3		4		5	
	N	%	N	%	N	%	N	%	N	%
E-Mail 1	21	7.6%	43	15.6%	72	26.2%	106	38.5%	33	12.0%
E-Mail 2	17	6.2%	35	12.7%	68	24.7%	125	45.5%	30	10.9%
E-Mail 3	6	2.2%	17	6.2%	22	8.0%	161	58.5%	69	25.1%
Mobile 1	13	4.7%	29	10.5%	44	16.0%	134	48.7%	55	20.0%
Mobile 2	13	4.7%	29	10.5%	73	26.5%	117	42.5%	43	15.6%
Mobile 3	8	2.9%	20	7.3%	39	14.2%	133	48.4%	75	27.3%
Social 1	6	2.2%	20	7.3%	67	24.4%	135	49.1%	47	17.1%
Social 2	5	1.8%	38	13.8%	82	29.8%	113	41.1%	37	13.5%
Social 3	7	2.5%	53	19.3%	42	15.3%	107	38.9%	66	24.0%
Social 4	9	3.3%	36	13.1%	66	24.0%	108	39.3%	56	20.4%
Decision 1	4	1.5%	11	4.0%	42	15.3%	139	50.5%	79	28.7%
Decision 2	5	1.8%	5	1.8%	18	6.5%	126	45.8%	121	44.0%
Decision 3	12	4.4%	59	21.5%	66	24.0%	87	31.6%	51	18.5%
Decision 4	10	3.6%	25	9.1%	55	20.0%	128	46.5%	57	20.7%
Decision 5	28	10.2%	95	34.5%	66	24.0%	56	20.4%	30	10.9%
Decision 6	5	1.8%	15	5.5%	38	13.8%	149	54.2%	68	24.7%



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