Investigating the impact of services marketing mix on brand loyalty and brand image using the PLS-SEM Approach

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Abstract:

In this article the researcher aims to literature the impact of services marketing mix on brand loyalty and brand image, by understanding the impact of both brand loyalty and brand image on Services marketing mix, the article finds that Marketing Strategy encompasses selecting and analyzing the target market/s and creating and maintaining an appropriate marketing mix that satisfies the target market and the organization. According to our model, marketing mix strategies are influenced by the company's marketing mix decisions while marketing mix decisions are influenced by the regional market environment, demand and size, and cultural differences of the country. The literature review indicated that existing research focused on Brand Loyalty, brand, and Image in general within the Telecom Sector. Therefore, this thesis examines whether the Services Marketing Mix Impacts Brand Loyalty and Brand Image in Telecom Industry.

Keywords: Services Marketing Mix, Mobile Customer-based brand Equity, Brand Image, Brand Loyalty.

1. Introduction

Globalization, liberalization, and privatization are the three most spoken words in today's world. These initiatives paved way for all-around reforms, especially in developing economies, like Egypt. These countries realized that the development of effective and efficient means of Communications and information technology is important to push them onto the path of development (Bailey, J.P., and Bakos, Y. 2019). The growth of the telecom sector in Egypt during post-liberalization has been phenomenal (MCIT,2021) This research aims to throw light on the factors that contributed to growth in the segment and presents an Insight into the present status of the industry.

With the awareness spreading around the world on Information and Communications Technology (ICT), in the later part of the 20^{th}-century countries, especially the developing ones, began to realize the importance of an efficient telecommunication network for the development of the economy (Akhil Gupta,2018).

At the dawn of the 21st century, developing countries started to make full use of the technology revolution taking place around the world, with many countries liberalizing the existing stringent policies and regulations (Anita Seth,2017).

To improve information and telecommunication technology, 189 countries of the UN met at the Fifty-Fifty General Assembly on September 2000. A millennium declaration was made, according to which the countries reaffirmed their commitment to improving the living conditions of the poor and downtrodden in the world by adopting intense poverty programs. One of the targets of this declaration was adherent to "In co-operation with the private sector make available the benefits of new technologies, especially information and communication" (Carlsson Jeanette and Arias Salvador,2020).

Service in Egypt is to be the most prominent among economic sectors, comprising 68% of the GDP in Egypt worth 235.7 billion dollars in 2021, the large contribution of the service sector to GDP compared with the small contribution of the industrial and agricultural sectors results in a service-oriented economy (Statistical Annual Report,

2021). Recent years have seen rapid changes in the service sector and the increased competition between firms, which has increased the importance of services brand management (Alina Wheeler, 2019), All these conditions have increased pressure upon the most dynamic member of the service sector: The mobile Telecommunication sector. Management in this sector faces increasing demands from Mobile customers, and faces new challenges to achieve what they want and provide customers with superior services in light of the existence of higher competition in the Telecom marketplace(Abdel Razek Al-Shuwekhi. (2019).

This issue is essential in the design and development of the firm's service offerings because the ultimate goal of Telecom Firms is to have valuable brand equity. This means that Management must give more attention and care to the Firm-marketing program by developing effective services marketing mix (SMM) elements that can increase brand equity over competitors in the telecom field (ICT Report, 2021). Many researchers accepted that by developing an effective service marketing mix, the company brand equity value can be increased. You suggest that service marketing mix elements can play a great role in affecting increasing brand equity and be effective elements on brand equity seems quite necessary for a company that desires to enter the arena of competition and survive in the market (Yoo, Boonghee,2018) One of service business sector that must manage good brand management is Telecommunication sector. It is undeniable that the need for communication for everyone is now very important in daily life.

Rapid technological developments changed the way people communicate over long distances than conventional, such correspondence becomes more practical, using mobile cellular with a phone call and short message service (Keller, K, 2018). Even today the development of the internet also transform the standard mobile phone to be a smartphone, and the way communication has evolved into internet-based (Internet World stats,2021). This enables everyone to communicate through video calls and social media. It means that mobile telecommunication providers today not only provide communication services but also provide the consumer need for the internet.

Despite the considerable progress of previous research in explaining the link between Services Marketing Mix (SMM) and Customer-Based Brand Equity (CBBE) (Aaker, D, 2018). this study adds further insight to the understanding of this link.

In addition, this research has the following important aspects:

1) mobile service providers (MSP) are amongst the fastest-growing companies in the service sector in Egypt. This rapid growth has been accompanied by other dramatic changes that have begun to exert significant pressure on MSPs dos to raise the value of their brands and to provide better services than what the other competitors in the marketplace do (The Egyptian Center for Economic Studies,2021).

2) The scarcity of Egyptian studies on Brand Loyalty and Brand Image gives an advantage to this research in helping Telecom Sector Decision Makers to start thinking about their mobile telecom service recipients and organizing their marketing efforts to raise their Customer-Based Brand Equity.

3) It is a field study applied to the main Mobile Service Providers in Egypt (Etisalat, Vodafone, Orange, WE) which means that the results of this study will be Significant and important to each company to increase or to maintain their competitive advantages in the Egyptian telecom market place.

2. Description of Data and Sample

The purpose of the present study was to investigate the extent to which extent services marketing mix impacts brand loyalty and brand image. For achieving this, the researchers developed a model that demonstrates the different impacts of services marketing mix on (a) Brand Loyalty and (b) Brand Image (see figure 1). The sample consisted of 255 observations, the study period was from 5/6/2021 to 03/06/2022, the researcher chose this period to understand the impact of services marketing mix on (a) Brand Image and (b) Brand Loyalty.

To give each element of the research population the same probability to be selected as one of the sample units, Simple Random Sampling is used in defining the research sample. Moreover, as the statistical population Exceeds 100,000 (95.66 million Mobile

Users in Egypt), the statistical sample size at the 95% level of assurance was equal to 384 through the Cochran sampling formula. In the present study to collect the data, 450 questionnaires will be distributed among customers and users. Afterward, 384 completed questionnaires will be selected for data analysis; The following formula is used to calculate the size of the required sample

$n = (z)^2 p (1–p)/d^2$

To calculate a proportion with a 95% level of confidence and a margin of error of 5% we obtain $n = (1.96)^2 95{,}660000(1\text{-}95{,}660000) / (0.05)^2 = 384.16$

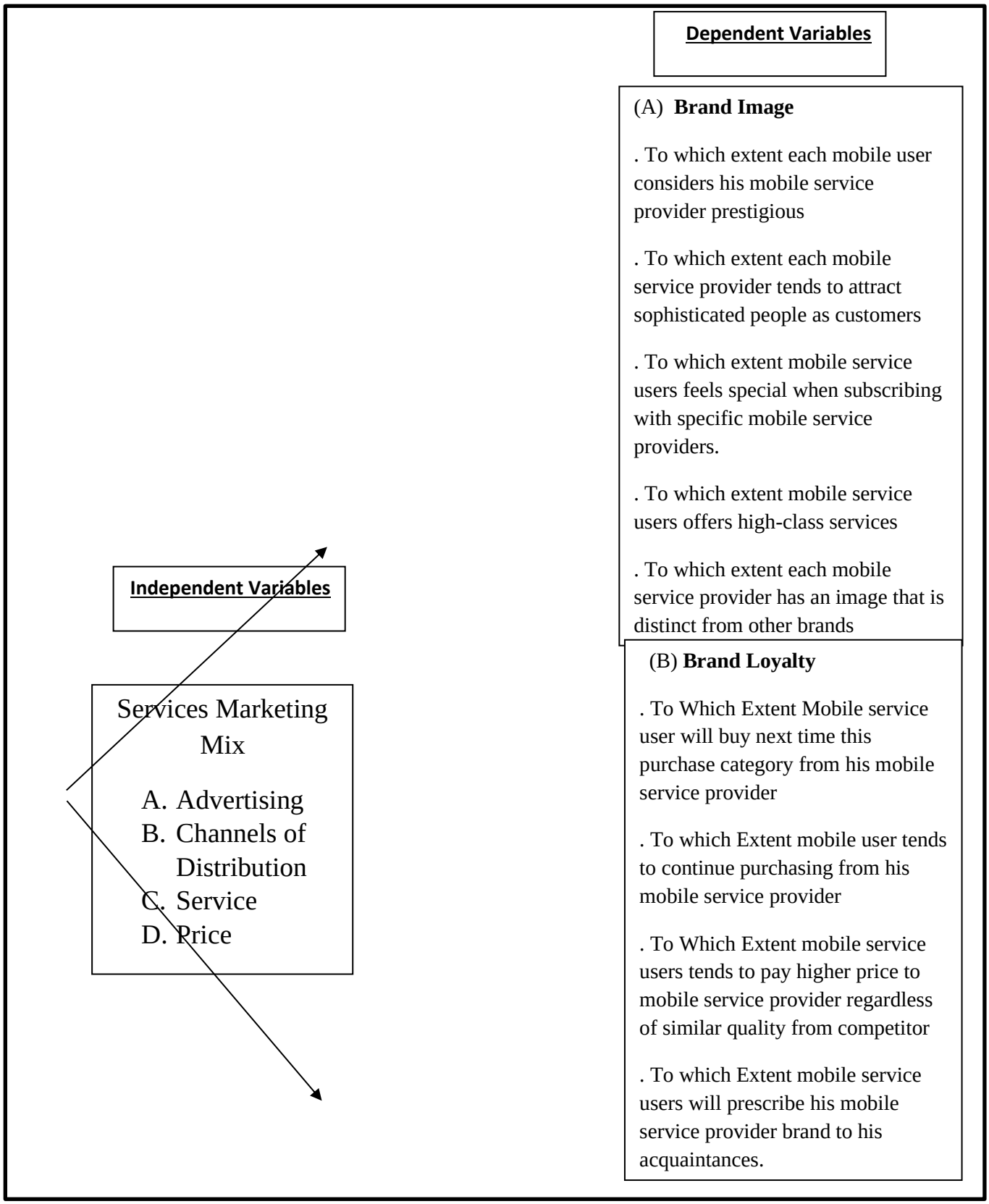
Dependent Variables
(A) Brand Image
. To which extent each mobile user considers his mobile service provider prestigious
. To which extent each mobile service provider tends to attract sophisticated people as customers
. To which extent mobile service users feels special when subscribing with specific mobile service providers.
. To which extent mobile service users offers high-class services
. To which extent each mobile service provider has an image that is distinct from other brands
(B) Brand Loyalty
. To Which Extent Mobile service user will buy next time this purchase category from his mobile service provider
. To which Extent mobile user tends to continue purchasing from his mobile service provider
. To Which Extent mobile service users tends to pay higher price to mobile service provider regardless of similar quality from competitor
. To which Extent mobile service users will prescribe his mobile service provider brand to his acquaintances.
Independent Variables
Services Marketing Mix
A. Advertising
B. Channels of Distribution
C. Service
D. Price

Figure (1)

2.1 The Independent Variable (Services Marketing Mix)

Which is defined as “the set of tools available to an organization to shape the nature of its offer to customers” (Keller, K, 2018). These elements are:

1) Service element is defined as the intangible activities and performance designed by the interactive process to satisfy customer needs and expectations, and convince them, this process could be done by using tangible products (Keller, K, 2018).

2) Price element is defined as the value of items that are needed for the acquisition of a product (Keller, K, 2018).

3) Channels of Distribution element involve the distribution channels, distribution coverage, outlet locations, inventory levels, and location (Keller, K, 2018).

4) Integrated Marketing Communication (Advertising) includes all of the tools available to the marketer to transform their message about the product strategy to the target market; moreover, this consists of a communication mix(Keller, K, 2018).

2.2 The Dependent Variables (Brand Image, Brand Loyalty)

2.2.1 Brand Image

Brand Image: a consumer’s perception of the brand as reflected by the brand associations held in his or her mind (Aaker, D, 2018).

2.2.2 Brand Loyalty

Brand Loyalty: defined by Aaker as the affection felt by a customer to a particular brand (Keller, K, 2018).

3. Methodology

This research used The partial least squares path modeling or partial least squares structural equation modeling (PLS-PM, PLS-SEM) for structural equation modeling that allows estimation of complex cause-effect relationships in path models with latent variables, so we measure the impact of all independent variables on brand loyalty and brand image., In addition, it identifies the most influential independent variables in the services marketing mix.

4. Results

4. Statistical Data Analysis

The study hypotheses were examined using the Smart PLS 3.2.7 software and the partial least squares structural equation modeling (PLS-SEM) technique. Common method bias (CMB) was detected through Harman's single-factor test (table A.1 in the appendix); the percentage of the factor's explained variance was below the threshold of 50% (MacKenzie and Podsakoff, 2012). The results of the normality statistics in table A.2 show that the values of Skewness and kurtosis for all the constructs of the model were within the range of ±2, therefore the variables were normally distributed (Trochim & Donnelly, 2006; Gravetter & Wallnau, 2014).

4.1 Assessing the Measurement Model

To establish the validity of the model's constructs, the measurement model was evaluated for reflective and latent variables (see figure 2). Factor loadings, Cronbach's Alpha, Joreskog rho (rho_A), composite reliability (CR), average variance extracted (AVE), and discriminant validity were used to assess construct validity (Hair & Lukas, 2014).

Table 1: Measurement model assessment

Construct	***Item***	***Loading***	***Cronbach's Alpha***	***rho_A***	***Composite Reliability***	***Average Variance Extracted (AVE)***
Brand Loyalty	Q1	0.826	0.876	0.894	0.908	0.628
	Q2	0.845				
	Q3	0.774				
	Q4	0.543				

	Q5	0.878				
	Q6	0.84				
Brand Image	Q7	0.751	0.873	0.876	0.908	0.664
	Q8	0.784				
	Q9	0.848				
	Q10	0.85				
	Q11	0.834				
Service	Q22	0.826	0.871	0.876	0.907	0.662
	Q23	0.79				
	Q24	0.723				
	Q25	0.868				
	Q26	0.853				
Price	Q27	0.762	0.862	0.869	0.907	0.709
	Q28	0.87				
	Q29	0.892				
	Q30	0.838				
Channels of distribution	Q31	0.732	0.887	0.894	0.914	0.641
	Q32	0.742				
	Q33	0.839				
	Q34	0.812				
	Q35	0.84				
	Q36	0.831				
Advertising	Q37	0.778	0.861	0.877	0.898	0.599
	Q38	0.847				
	Q39	0.86				
	Q40	0.778				
	Q41	0.791				
	Q42	0.547				

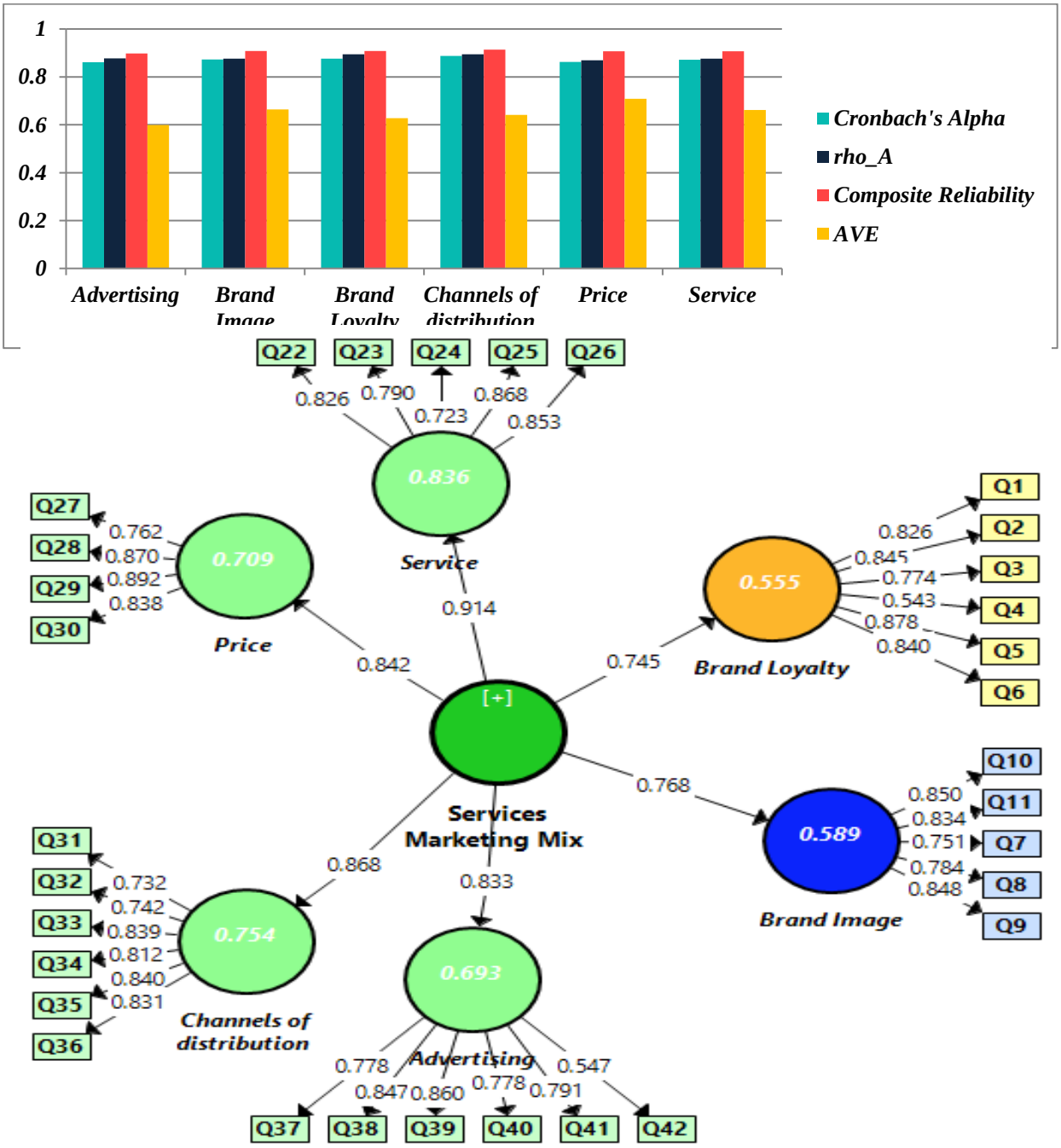

Figure 2: Measurement Model Assessment (Factor Loading)

Table 1 displays indicators' loadings, as well as the constructs Cronbach's Alpha, rho_A, CR, and AVE. All values of outer loading were above 0.4 (Hair et al., 2017), therefore no items were removed from the model. The table also shows that Cronbach's Alpha, rho_A, and CR values were above the requirement (0.70) proposed by Hair et al. (2017). The convergent validity of reflective measurement models is also measured through AVE

values that should be above 0.5; therefore, the convergent validity in the table (1) is established.

Table 2: Discriminant validity (Fornell-Larcker criterion)

	Advertising	***Brand Image***	***Brand Loyalty***	***Channels of distribution***	***Price***	***Service***
Advertising	**0.774**					
Brand Image	0.634	**0.815**				
Brand Loyalty	0.612	0.764	**0.792**			
Channels of distribution	0.61	0.62	0.554	**0.801**		
Price	0.599	0.638	0.676	0.62	**0.842**	
Service	0.666	0.759	0.744	0.735	0.755	**0.814**

Table 3: Discriminant validity (HTMT ratio)

	Advertising	***Brand Image***	***Brand Loyalty***	***Channels of distribution***	***Price***
Brand Image	0.722				
Brand Loyalty	0.701	0.863			
Channels of distribution	0.685	0.694	0.624		
Price	0.691	0.723	0.762	0.704	
Service	0.765	0.86	0.848	0.831	0.864

Table (2) shows the results of the Fornell-Larcker criterion, the square root of each construct's AVE was reported on the main diagonal of the table, whereas the rest of the values are the inter-correlations between the construct. The idea behind this test is that the square root of each construct's AVE should be greater than its highest correlation with any other construct. The HTMT approach is "the ratio of the between-trait correlations to the within-traits correlations". HTMT values should be lower than 0.90 (Henseler et al., 2015). Following the previous guides of the Fornell-Larcker criterion and HTMT values, discriminant validity is established.

4.2 Assessing the Structural Model

Examining the structural model includes path coefficients, collinearity diagnostics, coefficient of determination (R2), effect size (f^2), predictive relevance (Q2), and goodness

of fit criteria. Before analyzing the structural model, the collinearity between constructs was examined using variance inflation factors (VIF) and found that all values were less than the threshold of 5 (Hair et al., 2017).

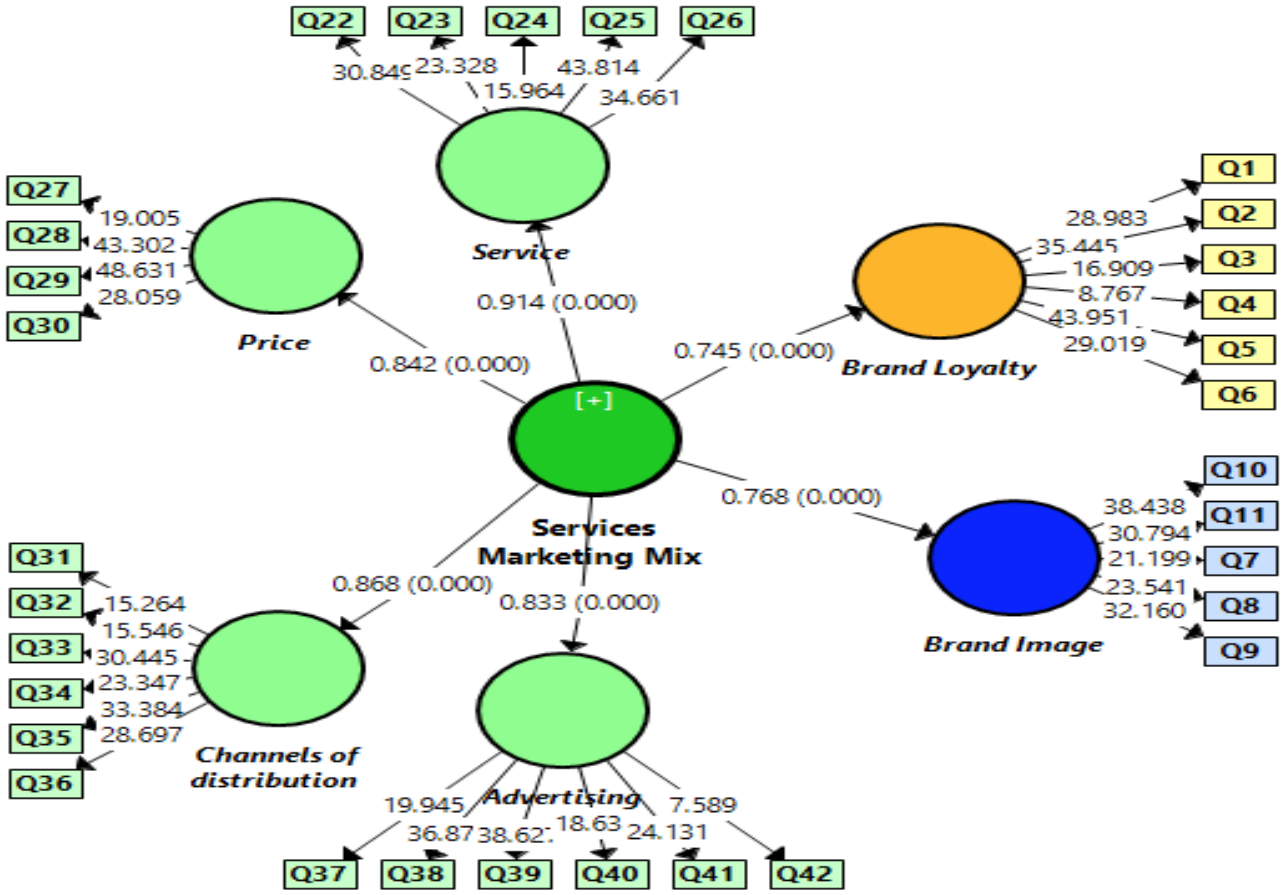

Figure 3: Structural Model Assessment

The results of hypothesis testing in table 4 and figure 3 showed at Services Marketing Mix construct yielded a significant direct positive effect on Brand Image since ($\beta = 0.768, t = 25.312, P < 0.001, 95\%\ CI$ for $\beta = [0.7,0.82]$), consequently, the first hypothesis is confirmed. Additionally, Services Marketing Mix construct yielded a significant direct positive effect on Brand Loyalty since ($\beta = 0.745, t = 23.124, P < 0.001, 95\%\ CI$ for $\beta = [0.673,0.801]$), consequently, the second hypothesis is confirmed.

Table 4: Results of Hypothesis Testing

Path	*B*	*t-value*	*P-value*	*95% Bis Corrected CI*		*Remark*
				LB	*UB*	
Services Marketing Mix -> Brand Image	0.768	25.312	0	0.7	0.82	Supported
Services Marketing Mix -> Brand Loyalty	0.745	23.124	0	0.673	0.801	Supported

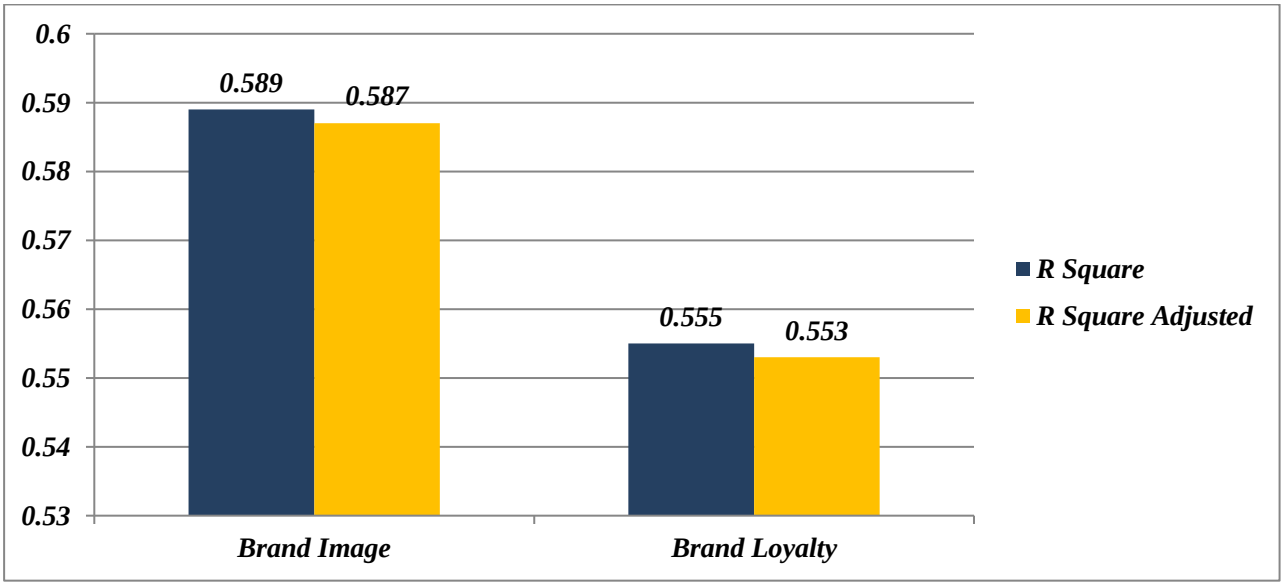

Figure 4: R Square Values

The results of R Square are reported in figure 4. Furthermore, the R-Square value of Brand Image equals $R^2 = 0.59$ meaning that about 59% of the variations in Brand Image are explained by the variation in Services Marketing Mix. Also, the R-Square value of Brand Loyalty equals $R^2 = 0.556$ meaning that about 56% of the variations in Brand Loyalty were explained by the variation in Services Marketing Mix.

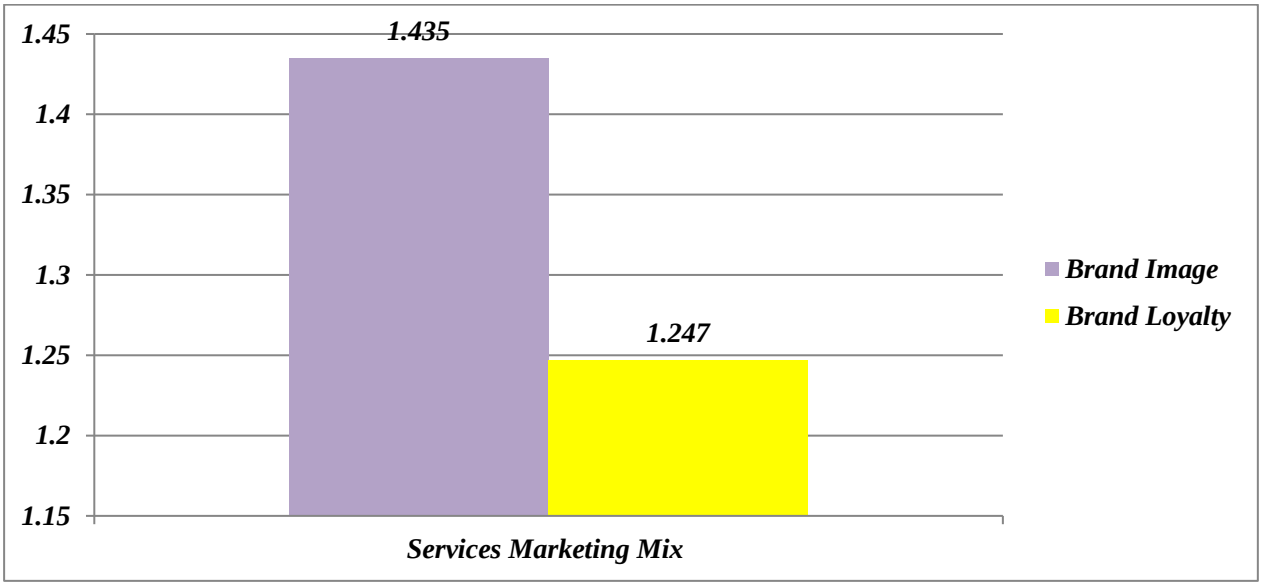

Figure 5: Effect Size

Figure 5 presents the $f - squared$ effect size of the constructs. The results illustrate that all effect sizes were large indicating great importance to the model, and were distributed as follows: Brand Image with $f^2 = 1.435$, and Brand Loyalty with $f^2 = 1.25$.

Table 5: Predictive Relevance

Construct	*SSO*	*SSE*	*Q² (=1-SSE/SSO)*
Brand Image	955	592.264	0.38
Brand Loyalty	1146	753.584	0.342

The Q^2 value is calculated by running a blindfolding procedure. Before running this procedure, an omission distance (D) of 7 is selected to examine the predictive power of the model (Hair et al., 2017). Table 5 presents the Q^2 value obtained from the analysis. The value of Q^2 is higher than 0, so it can be safely concluded that the research model has a good predictive relevance.

Conclusion

Based on this study, the element of the service marketing mix has a significant impact on brand image, and brand loyalty. This result same as other previous studies, but there are some differences in element service marketing that give strong and weak effects on each brand image and brand loyalty. This phenomenon happened because the location of the research is different. The nature of service can be stated as the most important service marketing mix element compared with others elements. Service directly has a positive impact on, brand image and brand loyalty which means if a company wants to get a high value of a brand image or brand loyalty in the market, they can focus on service by increasing the quality of service they provide to the customer. However, that doesn't mean other elements can't be ruled out by the company in its efforts to obtain a high value of brand image and brand loyalty, because it proved all the elements together can increase all dimensions of brand image and brand loyalty. Elements of the service marketing mix have the most impact on the brand loyalty dimension. Based on the result of multiple regression analysis for the effect of SMM elements together on brand loyalty, the result of R^2 equal to 0.657 or the mean of 65.7% of brand loyalty can be explained by all elements of the service marketing mix, the highest value of R^2 value compared other brand image dimension. This statement is supported by a value of Constant in the multiple regression model, i.e. -0.455. This condition means that, without all elements of the service marketing mix, the high value of brand loyalty can't be awarded. So, if a company wants to get a high value of brand loyalty, it must plan a good service marketing mix strategy.

The limitation of this study is mostly respondents in this research are from Cairo, Giza only. The respondent of this research is limited only to specific destinations, based on this limitation, if any other researcher needs to continuously study this topic, the researcher suggests respondent are not limited only to Cairo, and Giza but also to other destinations where mobile service consumer exists. So, the research can cover a larger destination and the result can be more comprehensive.

Finally, based on the value of determination of the service marketing mix element to brand image less than 0.5, it is mean that there is another element outside of the service marketing mix element that can be explained compared with the element in this study. The last researcher suggests that future research can use that other element, so the result

can be more comprehensive which can help a company to make a more competitive strategy to gain high value of brand image and brand loyalty in the market.

Appendix

Table A.1: Results of Harman's single-factor test

Total Variance Explained						
Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	**14.866**	**46.456**	**46.456**	**14.866**	**46.456**	**46.456**
2	2.067	6.459	52.915			
3	1.660	5.188	58.103			
4	1.398	4.370	62.472			
5	1.175	3.671	66.144			
6	1.095	3.421	69.564			
7	.961	3.004	72.568			
8	.902	2.818	75.386			
9	.804	2.512	77.898			
10	.715	2.235	80.133			
11	.632	1.974	82.108			
12	.609	1.905	84.012			
13	.465	1.452	85.465			
14	.461	1.440	86.904			
15	.416	1.301	88.205			
16	.398	1.245	89.450			
17	.374	1.169	90.619			
18	.361	1.127	91.746			
19	.328	1.025	92.770			
20	.277	.865	93.635			
21	.249	.779	94.414			
22	.241	.755	95.169			
23	.227	.708	95.877			
24	.201	.627	96.505			
25	.195	.610	97.115			
26	.174	.544	97.659			
27	.156	.488	98.147			
28	.142	.444	98.591			
29	.126	.394	98.985			

30	.121	.377	99.362			
31	.109	.341	99.703			
32	.095	.297	100.000			
Extraction Method: Principal Component Analysis.						

Table A.2: Normality diagnostics

Construct	Symbol	Skewness	Kurtosis	Remark
Brand Loyalty	Y1	-0.341	-0.576	Normality assumption attained
Brand Image	Y2	-0.534	-0.082	
Service	X1	-0.442	-0.733	
Price	X2	-0.584	-0.358	
Channels of distribution	X3	-0.712	-0.062	
Advertising	X4	-0.364	-0.505	
Mobile Customer-Based Brand Equity	Y	-0.344	-0.381	
Services Marketing Mix	X	-0.361	-0.542	

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