

# Marketing Communications in The Era of Digital Transformation

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**Abstract-** The study investigates that in the era of digital transformation, marketing communications, driven by the use of digital platforms have enhanced the visibility of the brand, engaged customers and promoted the Sustainable Development Goals properly too. To analyze the effectiveness of the communication channels, the ANOVA method was used, which helped in drawing relevant information required for the marketing purposes. This tool compared the variances across different groups, thus, evaluating how to shape or influence the behaviors of consumers. Based on the study, promotions are integral to marketing communications, and thus, offering discounts, coupons, offers, gifts and other benefits influenced the business' outreach, while even allowing the social networks to expand its reach and functionality too. The Pehlevi's bibliometric analysis was also found to be effective for identifying the trends such as the integration of marketing communications with the customer relationship management. The marketing communication strategies were though tailored to evaluate the diverse consumer demographics, and understanding their preferences, based on which the pricing and distribution strategies were implemented. The resulting data were based on the comparison of marketing communication tools or the age groups of individuals. Based on the use of ANOVA method and other tools, the results showed that the consumers in between the age of 18 to 34 years were more diverted towards online promotions and marketing managed by the companies, while the older people prioritized on point-of-sale advertising and their preferences, based on their ages. Though the preferences differ, the online marketing and promotions helped in engaging people from diverse backgrounds and thus, engaged everyone, be it young or old people. Furthermore, it helped in gaining information on the consumer behaviors and based on that, various marketing strategies were implemented to influence the purchasing decisions effectively.

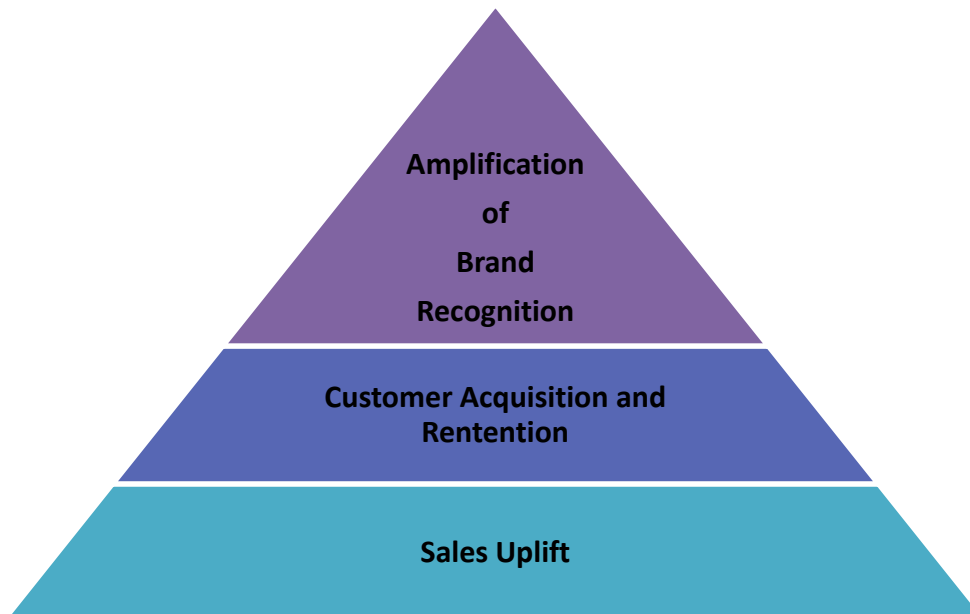
**Keywords-** Advertising, promotions, transformation, consumer, strategies, communication.

## I. INTRODUCTION

The rapid digital transformation of the business landscape has revolutionized marketing communications, necessitating adaptation to connect with consumers who increasingly rely on digital platforms. This transformation offers opportunities to enhance brand visibility, engage customers, and promote Sustainable Development Goals; despite advancements, challenges persist, including understanding consumer perceptions of marketing tools. It is essential to study various communication channels' effectiveness using methods like ANOVA, leading to valuable insights for the marketing field (Nesterenko, Miskiewicz and Abazov 2023).

II. ANALYSIS OF VARIANCE (ANOVA) IS A STATISTICAL FORMULA THAT COMPARES VARIANCES ACROSS DIFFERENT GROUPS' MEANS (OR AVERAGES).

Marketing communication channels are pivotal in shaping consumer behavior, acting as a dynamic bridge for two-way interaction between businesses and their audiences. These channels serve diverse marketing objectives, encompassing –



Many tools and strategies are deployed Within the marketing communications realm, spanning online advertising, personal selling, direct marketing, public relations, and promotions. Evaluating the efficacy of these channels is a cornerstone of strategic decision-making (Zheng and Bensebaa 2022).

Promotions are essential to marketing communications, stimulating sales like discounts, coupons, gifts, and contests. In the digital era, effectiveness metrics, including increased sales, web traffic, registrations, and average purchase value, gauge the impact of promotions. As explored by E. Cagnago and N. Ariani, integrated marketing communications play a pivotal role in enhancing communication, boosting sales, and minimizing the need for repetitive promotions, particularly for small and medium-sized enterprises (Liu, Luo and Zhang 2021). Instagram's influence as a marketing communication tool, examined by Asrul A. et al., underscores the potential for social networks to expand the reach and functionality of marketing communication.

Studies like R. Pehlevi's bibliometric analysis identify trends such as integrating marketing communications with customer relationship management and the importance of added value in communication plans. D. Mulder's historical perspective on marketing communication highlights its evolution into integrated communication, emphasizing its vital role in an organization's overall success.

Knowing a diverse consumer demographics, businesses often tailor their marketing communication strategies, employing innovative technologies and interactive formats to engage younger audiences while maintaining traditional approaches for older demographics.

Furthermore, conducting marketing channel research and leveraging analytical tools like ANOVA empowers businesses to comprehend customer preferences, inform product/service development, and devise optimal pricing and distribution strategies, boosting sales and profitability (Zheng and Bensebaa 2022).

Based on the analysis, the present study proposes the following hypotheses: H1: Consumer reactions to different marketing communication tools, such as online advertising, outdoor advertising, direct marketing, social media, etc., have statistically significant differences in consumer perception. H2: The effectiveness of online advertising has statistically significant differences in the perception of specific age groups.

### III. METHOD

The research harnessed data obtained from a survey administered to customers of the GH women's clothing chain, spanning from January 1, 2022, to December 31, 2022. The primary marketing channels under scrutiny encompassed social media advertising, printed promotional materials, celebrity partnerships, and more. The dataset contained internet-based marketing communication, inclusive of text content generated with the assistance of Chat GPT artificial intelligence. A total of 200 respondents participated in the study. Within this group, the largest contingent, constituting 36% (72 individuals), belonged to the 18-24 age bracket (refer to Table 1). Following closely, the 25-34 age group comprised 29% (58 individuals). Those under 18 accounted for 18% (36 individuals), while the 35-45 age range represented 11% (22). Individuals above 45 constituted 6% (12 individuals) of the sample. The store's patrons were predominantly high-income consumers, 71% of the respondents, while the remaining 29% were categorized as middle-income shoppers. Of the 200 surveyed customers, 96% were repeat purchasers, while 4% were not. Regarding the gender distribution among luxury apparel consumers, women comprised the majority 78.5% of the total buyers, with men constituting 21.5%.

Table 1. Marketing communications by consumer age categories

AGE	INTERNET	BILLBOARDS	ADVERTISING AT POINTS OF SALE	PERSONAL SALES	DIRECT MARKETING	PR	PROMOTIONS
Up to 18 years	12	2	6	4	8	1	3
18-24 years	31	2	12	6	9	8	4
25-34 years	34	3	4	5	4	3	5
35-45 years	6	1	1	6	3	3	2
More than 45	2	1	2	1	2	1	3

years							
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The study participants were categorized into two customer segments within the store. The first, representing 96% of the sample, consists of loyal customers termed "Special" who prioritize service quality, actively participate in in-store promotions and events, and are inclined to make repeat purchases. The second segment, constituting 4% of the sample, is labeled "Casual" customers, who make a single store purchase, do not return, show limited interest in promotions, and perceive prices as high. Converting this group into regular customers necessitates additional re-engagement efforts.

Cronbach's alpha was calculated to assess the internal consistency and reliability of the survey instrument:

$$\alpha = \frac{k}{k-1} \left( 1 - \sum_{I=1}^k \frac{\sigma_{y^2}}{\sigma_x^2} \right)$$

Where  $\alpha$  – Cronbach's alpha;  $K$  – the number of measured components (in this case, 3);  $X^2$  – the variance of the overall test result;  $Y^2$  – the variance of the element for the current sample.

The questionnaire's internal consistency, measuring consumer perceptions, was assessed with a Cronbach's alpha value of 0.68, indicating satisfactory reliability. For hypothesis testing, ANOVA (analysis of variance) was employed, allowing the examination of differences in consumer perception across various marketing communication tools (H1) and within specific age groups (H2). ANOVA analyzed survey responses as the dependent variable, with different marketing communication tools and age groups as independent variables. It involved sum of squares calculations, degrees of freedom determination, and F-statistic estimation, with a significance level of  $\alpha = 0.05$  for statistical significance determination [52, 53].

To assess the normality of the data distribution, the Shapiro–Wilk test was employed:

$$w = \frac{(\sum_{t=2}^n a_t y_t)^2}{\sum_{t=1}^n (x_t - y_{avg})}$$

Where:  $W$  is the value of the Shapiro-Wilk coefficient;  $a_t$  is the table coefficients;  $y_t$  is a sample value;  $n$  is the number of observations.

The study employed various statistical tests to ensure the robustness of the data analysis. The Shapiro-Wilk test was used to assess the normal distribution of the collected data. Based on the F test of sample variance, Levene's test was applied to examine the equality of variances among different data groups, helping determine if significant variations existed between groups. This assessment of variance homogeneity was crucial for ensuring the validity of subsequent statistical analyses.

In cases where ANOVA revealed significant overall differences, additional post hoc tests were conducted to investigate specific pairwise comparisons between marketing communication tools or age groups. Tukey's test was chosen as the post hoc test to provide deeper insights into which particular groups or devices exhibited significant differences in consumer perception. Reviews, data analysis, and one-factor analysis of variance (ANOVA) were employed to analyze the significance of differences in the factor levels presented in the study (Krizanova et al. 2019).

#### IV. RESULTS AND DISCUSSION

The Shapiro-Wilk test revealed a negligible probability of the samples following a normal distribution, with a p-value of 0.00535. Therefore, it can be concluded that the data does not exhibit a normal distribution.

Table 2. The outputs of Shapiro–Wilk test

The Shapiro–Wilk test	
Calculated W-value of the Shapiro-Wilk test	0.578
Calculated p-value of the Shapiro-Wilk test	0.00
Critical value of W for a significance level of 5%	0.938

The study employed the Levene test to assess the homogeneity of variance between samples, indicating a uniform distribution of respondents. The research examined the impact of various marketing tools on customer behavior. Notable findings are presented in Table 3, with the analysis covering tools like the "Internet," "Printed Advertisements," "Billboards," "Advertising at Points of Sale," "Personal Sales," and "Public Relations."

For the "Internet" marketing tool, 85 individuals participated, with an average spending of 17. A dispersion value of 214 suggested potential spending behavior variations among age groups. "Printed Advertisements" attracted nine individuals with a moderate amount of 1.8, showing relatively consistent spending patterns among age groups (dispersion value of 0.7). "Billboards" had 25 customers with an average spending amount of 5, but a high dispersion value of 19 indicated diverse spending patterns. "Advertising at Points of Sale" involved 22 customers with an average spending amount of 4.4, and a dispersion value of 4.3 implied moderate spending behavior differences. "Personal Sales" attracted 26 customers with an average spending of 5.2, and a dispersion value of 9.7 indicated diverse spending patterns. The study also explored the impact of "Public Relations."

This marketing tool engaged 16 customers, divided across five distinct age groups. The total expenditure linked to public relations amounted to 16, yielding an average spend of 3.2. A dispersion value 8.2 indicated a significant range in reported spending amounts within each age group, indicating potential variations in customer spending patterns (Eagle et al. 2020). Lastly, the study examined the impact of "Promotions" on customer behavior, attracting 17 customers across five age groups. The cumulative expenditure associated with promotions equaled 17, resulting in an average payment. of 3.4. A low dispersion value 1.3 suggests a relatively consistent spending pattern among customers within each age group.

Table 3. The Impact of Marketing Tools on the Age Factor

Marketing tools	Number of involved	Amount of age groups	Sum	Average	Dispersion
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customers					
Internet	85	5	85	17	21
Printed advertisements	9	5	9	1.8	0.7
Billboards	25	5	25	5	19
Advertising at points of sale	22	5	22	4.4	4.3
Personal sales	26	5	26	5.2	9.7
Public relations	16	5	16	3.2	8.2
Promotions	17	5	17	3.4	1.3

The analysis in Table 3 highlights that the Internet is most impactful for younger consumers, particularly those under 34, compared to older demographics. This indicates that the Internet is a more effective marketing tool for reaching and influencing younger audiences. Conversely, traditional marketing channels exhibit relatively weaker effectiveness, suggesting that newer technologies, like the Internet, outperform them. The study also underscores that various age groups respond differently to different communication channels, emphasizing the significance of tailoring advertising campaigns to specific age groups that exhibit higher responsiveness to the respective marketing communication channel (Eagle et al. 2020). This targeted approach ensures maximum effectiveness and resonance with the intended audience. Table 4 summarizes the conclusions drawn from analyzing the statistically significant influence of factor levels, specifically age groups, on average spending amounts, presenting data on various statistical parameters such as variation source, the sum of squares (SS), degrees of freedom (df), mean squares (MS), F-statistic, p-value, and critical F value.

Table 4. The outputs of ANOVAs

Variation source	SS	df	MS	F	P value	F critical
Between groups	784.343	6	130.724	3.558	0.0096	2.445
Within groups	1028.8	28	36.743			
Total	1813.14	34				

The analysis in Table 4 confirms statistically significant differences in average spending across various age groups, indicating that age group membership significantly impacts consumer spending patterns. The "between groups" variation source, as demonstrated by the F-statistic (3.558) and p-value (0.0096), underscores the substantial variability in average spending among age groups, providing strong evidence for these differences. In contrast, the "Within groups" variation source in Table 4 represents variability within each age group, with a mean square value of 36.743, indicating the average variability within age groups. The total sum of squares is

1813.143, considering between and within-group variability. Notably, Table 4 primarily focuses on the statistical analysis of differences in average spending between age groups and needs to explicitly address the relative effectiveness of Internet marketing compared to other tools (Juska 2021). Consequently, additional research and analysis would be required to conclude the comparative effectiveness of various marketing tools in influencing consumer behavior across age groups.

## V. CONCLUSION

The analysis reveals vital insights into consumer behavior and marketing communication channel preferences. Consumers aged 18 to 34 are more inclined towards online advertising and direct marketing. In contrast, older consumers favor promotions and point-of-sale advertising, indicating age-related preferences for engaging with marketing messages. Younger consumers (under 34) are more receptive to online marketing communications, while older consumers respond better to billboards and promotions, emphasizing the importance of tailoring marketing strategies to specific age groups. Online advertising stands out with its diverse consumer engagement, suggesting its effectiveness in reaching a broad audience. This research has practical implications for refining marketing and advertising strategies, informing management decisions, enhancing product quality, and boosting competitiveness. The study underscores the need for a comprehensive approach when targeting different age groups in marketing campaigns. It highlights the significance of investigating factors influencing consumer purchasing decisions and relationships between qualitative and quantitative variables. Ultimately, these findings offer valuable insights into consumer behavior and opportunities for developing more effective marketing and advertising strategies.

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