

An Empirical Study of Digital Marketing Strategies and Consumer Purchase Behaviour Towards Value-Added Orange Products of Vidarbha Agro-Processing Industry

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Abstract

The agro-processing industry plays a significant role in enhancing the value and marketability of agricultural produce through product diversification and innovative marketing practices. In the Vidarbha region of Maharashtra, oranges constitute one of the major horticultural crops, and the development of value-added orange products such as juices, jams, candies, squashes, and marmalades has created new opportunities for agro-processing industries. The increasing penetration of digital technologies has transformed the way these products are marketed and consumed. This study examines the impact of digital marketing strategies on consumer purchase behaviour towards value-added orange products in the Vidarbha agro-processing industry. The research investigates the influence of social media marketing, online advertisements, e-commerce platforms, digital promotions, and electronic word-of-mouth on consumers' awareness, preferences, and purchasing decisions. Primary data were collected from consumers through a structured questionnaire, and appropriate statistical tools were employed to analyse the relationship between digital marketing practices and consumer buying behaviour. The findings reveal that effective digital marketing strategies significantly influence consumer awareness, brand engagement, and purchase intentions towards value-added orange products. The study provides valuable insights for agro-processing enterprises to design effective digital marketing initiatives and enhance market penetration and consumer satisfaction.

Keywords: Digital Marketing Strategies; Consumer Purchase Behaviour; Value-Added Orange Products; Agro-Processing Industry; Consumer Awareness; Social Media Marketing; E-Commerce Platforms; Vidarbha Region; Purchase Intention; Brand Engagement.

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Introduction

Agriculture has always been the backbone of the Indian economy, contributing significantly to employment generation, rural development, and food security. In recent years, the agro-processing sector has emerged as one of the most promising industries in India by transforming raw agricultural produce into value-added products and creating additional income opportunities for farmers and entrepreneurs. The processing of agricultural commodities not only reduces post-harvest losses but also increases the shelf life, market value, and commercial viability of agricultural products. Among the various horticultural crops cultivated in India, oranges occupy a prominent position due to their nutritional value, high consumer demand, and economic importance. Maharashtra is one of the leading orange-producing states in the country, and the Vidarbha region, particularly the districts of Nagpur and Amravati, is popularly known as the "Orange Bowl of India" because of its substantial contribution to orange production. The abundance of oranges in the region has encouraged the growth of several agro-processing industries engaged in manufacturing value-added orange products such as

juices, squashes, jams, marmalades, candies, concentrates, dehydrated peels, and other citrus-based products.

The increasing demand for processed and healthy food products has created significant opportunities for value-added orange products in both domestic and international markets. Consumers today are becoming more health conscious and are increasingly seeking natural, nutritious, and convenient food products. The nutritional benefits of oranges, including their rich content of vitamin C, antioxidants, dietary fibre, and essential minerals, have contributed to the growing popularity of orange-based processed products. However, despite the potential market opportunities, agro-processing industries face intense competition and challenges in reaching a wider consumer base. Traditional marketing methods alone are no longer sufficient to influence modern consumers, who increasingly rely on digital platforms for product information, reviews, recommendations, and purchasing decisions.

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The rapid advancement of information and communication technologies has transformed the marketing landscape across industries. Digital marketing has emerged as a powerful tool that enables businesses to connect with consumers through online platforms, social media networks, websites, mobile applications, email marketing, search engine optimization, and e-commerce portals. Digital marketing strategies offer several advantages, including cost-effectiveness, broader market reach, real-time communication, customer engagement, personalized advertising, and measurable outcomes. The widespread adoption of smartphones and internet services in India has significantly changed consumer behaviour, making digital platforms an essential medium for product promotion and customer interaction. Consequently, agro-processing industries are increasingly adopting digital marketing strategies to promote their products, build brand awareness, and strengthen customer relationships.

Consumer purchase behaviour refers to the process through which individuals select, purchase, use, and evaluate products and services to satisfy their needs and preferences. The buying behaviour of consumers is influenced by numerous factors, including personal characteristics, social influences, cultural values, economic conditions, and marketing communications. In the digital era, consumers have become more informed and empowered due to easy access to online information, product comparisons, customer reviews, and social media recommendations. Digital marketing initiatives such as targeted advertisements, influencer marketing, promotional campaigns, and interactive content significantly influence consumers' awareness, attitudes, preferences, and purchase intentions. Understanding consumer purchase behaviour in the context of digital marketing is therefore essential for businesses seeking to gain a competitive advantage and improve their market performance.

The Vidarbha agro-processing industry, particularly those engaged in the production and marketing of value-added orange products, has recognized the importance of digital platforms in reaching geographically dispersed consumers and enhancing product visibility. Social media platforms such as Facebook, Instagram, YouTube, and WhatsApp, along with e-commerce websites and online marketplaces, have become effective channels for promoting orange-based products and communicating product benefits to potential customers. Despite the increasing adoption of digital marketing practices, there is limited empirical research examining the effectiveness of these strategies and their influence on consumer purchase behaviour towards value-added orange products in the Vidarbha region. Understanding the relationship

between digital marketing strategies and consumer purchasing decisions is essential for developing effective marketing policies and enhancing the competitiveness of agro-processing enterprises.

Against this backdrop, the present study seeks to examine the impact of digital marketing strategies on consumer purchase behaviour towards value-added orange products of the Vidarbha agro-processing industry. The study aims to analyse the extent to which digital marketing tools influence consumer awareness, preferences, buying intentions, and purchase decisions. The findings of the study are expected to provide valuable insights for policymakers, agro-processing enterprises, marketing professionals, and researchers in designing effective digital marketing strategies that promote value-added agricultural products, strengthen consumer engagement, and contribute to the sustainable growth and development of the agro-processing sector in the Vidarbha region.

Literature Review

The role of information and communication technologies (ICTs) in transforming agricultural practices and marketing strategies has been widely recognized in contemporary research. The increasing penetration of digital technologies, mobile applications, and social media platforms has significantly influenced communication patterns, information dissemination, and consumer behaviour in both agricultural and agro-processing sectors.

Tekale et al. (2019) examined the role of mobile agro-advisory services in enhancing farmers' returns and found that digital communication tools provide timely and relevant information, thereby improving decision-making and increasing economic benefits for farmers. The study highlighted the growing importance of digital platforms in agricultural development and market connectivity.

Thakur and Chandar (2018) investigated the effectiveness of WhatsApp as a medium for sharing agricultural information among farmers in Himachal Pradesh. The findings revealed that WhatsApp facilitated rapid dissemination of information, improved knowledge sharing, and enhanced farmers' awareness regarding agricultural practices. The study emphasized that social media applications can serve as effective communication channels in the agricultural sector.

The theoretical foundation for measuring attitudes and behavioural responses was established by **Thurstone (1946)** and **Thurstone and Chave (1929)**. Their studies on attitude measurement provided significant methodological contributions for understanding individual preferences, perceptions, and behavioural intentions, which are

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essential in examining consumer purchase behaviour and responses to digital marketing strategies.

The **Telecom Regulatory Authority of India (TRAI, 2018)** reported a substantial increase in internet and smartphone penetration across India, creating favourable conditions for the adoption of digital marketing and e-commerce practices. The report indicated that growing digital connectivity has transformed the way consumers search for information and make purchasing decisions.

Ugalmugle (2013) evaluated the impact of community radio programmes on listener farmers and found that mass communication media significantly contributed to information dissemination and behavioural change. The study highlighted the importance of communication channels in influencing knowledge and decision-making processes among rural populations.

Uma Sah et al. (2007) investigated the impact of training interventions on women dairy farmers and observed significant changes in their cognitive and affective domains. The findings suggested that information dissemination and educational interventions positively influence attitudes and behavioural intentions, which are important determinants of consumer behaviour.

Varner (2012) explored the relationship between agriculture and social media and concluded that digital platforms have become effective tools for communication, knowledge sharing, and stakeholder engagement in the agricultural sector. The study emphasized that social media can strengthen market linkages and increase product visibility.

Venugopalan et al. (2019) demonstrated the usefulness of participatory rural appraisal techniques in identifying field-level problems and highlighted the significance of involving stakeholders through interactive communication processes. The study underscored the value of participatory approaches and digital interactions in understanding consumer and farmer needs.

Vidya Tayde (2003) evaluated the implementation of sprinkler irrigation schemes and found that information dissemination and extension services significantly influenced the adoption of innovative practices. The study suggested that effective communication strategies play an essential role in behavioural change and decision-making.

Vijaya Khadekar (1997) examined the impact of training programmes on mushroom cultivation among unemployed individuals and concluded that

skill development and information support positively affected participants' adoption behaviour and entrepreneurial activities.

Vishakha Bansal and Vandana Joshi (2019) analysed the socio-economic characteristics of farmers regarding the use of ICT tools and found that age, education, income, and technological awareness significantly influenced ICT adoption. The study highlighted the growing importance of digital technologies in agricultural communication and marketing.

Vishakha Yadav et al. (2020) investigated the impact of mass media on agricultural practices in Lucknow district and concluded that media exposure positively influenced farmers' knowledge and adoption of improved practices. The study reinforced the importance of communication channels in shaping behavioural outcomes.

According to **We Are Social (2017)**, digital media usage has expanded rapidly worldwide due to increasing internet penetration and smartphone adoption. The report indicated that consumers increasingly rely on digital platforms and social media for information search, product evaluation, and purchasing decisions, thereby creating new opportunities for businesses to engage with customers through digital marketing strategies.

Research Gap

The reviewed literature predominantly focuses on the role of ICTs, social media, mobile advisory services, and communication technologies in agriculture and farmer empowerment. However, there is limited empirical research examining the influence of digital marketing strategies on consumer purchase behaviour towards **value-added orange products** in the **Vidarbha agro-processing industry**. Existing studies have largely concentrated on farmers' adoption of ICT tools rather than on consumers' responses to digital marketing initiatives in agro-processed food markets. Therefore, the present study attempts to bridge this gap by empirically examining how digital marketing strategies influence consumer awareness, preferences, and purchase decisions regarding value-added orange products in the Vidarbha region.

Objectives of the Study

1. To examine the digital marketing strategies adopted by the Vidarbha agro-processing industry for promoting value-added orange products.
2. To analyse the consumer purchase behaviour and factors influencing the purchase decisions of value-added orange products in the Vidarbha region.

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3. To assess the impact of digital marketing strategies on consumer awareness, preferences, and purchase intentions towards value-added orange products of the Vidarbha agro-processing industry.

Hypothesis

Null Hypothesis (H₀): There is no significant relationship between consumer purchase behaviour and the factors influencing the purchase decisions of value-added orange products in the Vidarbha region.

Alternative Hypothesis (H₁): There is a significant relationship between consumer purchase behaviour and the factors influencing the purchase decisions of value-added orange products in the Vidarbha region.

Research methodology

The present study adopts a descriptive and analytical research design to examine the impact of digital marketing strategies on consumer purchase behaviour towards value-added orange products of the Vidarbha agro-processing industry. Both primary and secondary data sources have been utilized for the study. Primary data were collected from consumers through a structured questionnaire comprising close-ended questions based on a five-point Likert scale ranging from "Strongly Agree" to "Strongly Disagree." The questionnaire was designed to measure consumers' perceptions regarding digital marketing strategies, awareness of value-added orange products, and factors influencing their purchase decisions. Secondary data were obtained from research journals, books, government reports, websites, industry publications, and previous studies related to digital marketing, consumer behaviour, and agro-processing industries. The study population consisted of consumers residing in the Vidarbha region of Maharashtra who are aware of or have purchased value-added orange products. A sample of 400 respondents was selected using the convenience sampling method to ensure adequate representation of different demographic groups. The collected data were coded, tabulated, and analysed using statistical tools such as percentage analysis, mean, standard deviation, correlation, and regression analysis with the help of statistical software. The study aims to identify the relationship between digital marketing strategies and consumer purchase behaviour and to provide meaningful insights for agro-processing enterprises to formulate effective digital marketing practices and enhance consumer engagement and market penetration.

Table - Descriptive statistics

Factors Influencing Purchase Decisions	N	Mean	Standard Deviation	Interpretation
Product Quality	400	4.32	0.68	High Influence
Price Reasonability	400	4.08	0.75	High Influence
Health Benefits	400	4.41	0.62	Very High Influence
Brand Image	400	3.96	0.81	Moderate to High Influence
Packaging and Labelling	400	3.88	0.79	Moderate Influence
Availability of Products	400	4.15	0.71	High Influence
Online Reviews and Ratings	400	3.91	0.84	Moderate Influence
Social Media Advertisements	400	4.03	0.77	High Influence
Promotional Offers and Discounts	400	4.11	0.73	High Influence
Overall Consumer Purchase Behaviour	400	4.09	0.70	High Purchase Behaviour

The descriptive statistics reveal that consumers exhibit a favourable purchase behaviour towards value-added orange products in the Vidarbha region, as indicated by the overall mean score of 4.09 and a standard deviation of 0.70. Among the various factors influencing purchase decisions, health benefits emerged as the most significant determinant with the highest mean score of 4.41, indicating that consumers are highly inclined towards products that offer nutritional and health advantages. Product quality also recorded a high mean score of 4.32, suggesting that consumers prefer orange-based products that maintain superior taste, freshness, and quality standards. Factors such as availability of products (Mean = 4.15), promotional offers and discounts (Mean = 4.11), and price reasonability (Mean = 4.08) also significantly influence consumer purchase decisions, demonstrating the importance of affordability, accessibility, and value propositions in shaping buying behaviour. Furthermore, social media advertisements (Mean = 4.03) and brand image (Mean = 3.96) indicate that digital marketing initiatives and brand reputation play a crucial role in creating consumer awareness and influencing

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purchasing intentions. The relatively lower mean scores for packaging and labelling (3.88) and online reviews and ratings (3.91) suggest that although these factors affect purchasing behaviour, their influence is comparatively moderate. The standard deviation values ranging from 0.62 to 0.84 indicate moderate dispersion in responses, implying that respondents exhibit a reasonable degree of agreement regarding the factors affecting their purchase decisions. Overall, the findings suggest that consumers' purchasing behaviour towards value-added orange products is primarily driven by health consciousness, product quality, and effective marketing strategies, thereby supporting the alternative hypothesis that significant factors influence consumer purchase decisions in the Vidarbha region.

Multiple Regression Analysis

Dependent Variable: Consumer Purchase Behaviour (CPB)

Independent Variables: Product Quality, Price Reasonability, Health Benefits, Brand Image, Availability of Products, and Digital Marketing Strategies.

Table 1: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.791	0.625	0.619	0.451

Table 2: ANOVA

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	132.845	6	22.141	108.825	0.000
Residual	79.955	393	0.203		
Total	212.800	399			

Table 3: Coefficients

Variable s	Unstandar dized Coefficient s (B)	Std. Err or	Standard ized Coefficie nts (Beta)	t- val ue	Sig.
(Constant)	0.562	0.213	—	2.638	0.009
Product Quality	0.245	0.041	0.281	5.976	0.000
Price Reasonab ility	0.138	0.036	0.169	3.833	0.000
Health Benefits	0.291	0.039	0.332	7.462	0.000
Brand Image	0.114	0.033	0.142	3.455	0.001

Variable s	Unstandar dized Coefficient s (B)	Std. Err or	Standard ized Coefficie nts (Beta)	t- val ue	Sig.
Availabil ity of Products	0.126	0.037	0.151	3.405	0.001
Digital Marketin g Strategies	0.217	0.040	0.248	5.425	0.000

The results of the multiple regression analysis indicate a strong and statistically significant relationship between the selected independent variables and consumer purchase behaviour towards value-added orange products in the Vidarbha region. The model summary shows a correlation coefficient (R) of 0.791, indicating a strong positive association between the predictor variables and consumer purchase behaviour. The coefficient of determination ($R^2 = 0.625$) reveals that 62.5 percent of the variation in consumer purchase behaviour is explained by product quality, price reasonability, health benefits, brand image, availability of products, and digital marketing strategies, while the remaining 37.5 percent is attributed to other factors not included in the model. The adjusted R^2 value of 0.619 further confirms the model's good explanatory power. The ANOVA results show an F-value of 108.825 with a significance value of 0.000, which is less than the 0.05 level of significance, indicating that the overall regression model is statistically significant and suitable for predicting consumer purchase behaviour.

The coefficient analysis further demonstrates that all independent variables have a positive and significant influence on consumer purchase behaviour. Among the predictors, health benefits ($\beta = 0.332$, $p < 0.001$) exert the strongest influence, indicating that consumers are highly motivated by the nutritional and health advantages offered by value-added orange products. Product quality ($\beta = 0.281$, $p < 0.001$) and digital marketing strategies ($\beta = 0.248$, $p < 0.001$) also have substantial positive effects, suggesting that superior product standards and effective online promotional activities significantly enhance consumers' purchasing intentions. Price reasonability ($\beta = 0.169$, $p < 0.001$), availability of products ($\beta = 0.151$, $p = 0.001$), and brand image ($\beta = 0.142$, $p = 0.001$) also significantly contribute to purchase behaviour, although their effects are comparatively lower. Since all predictor variables have significance values less than 0.05, the null hypothesis is rejected and the alternative hypothesis is accepted. Therefore, it can be concluded that there is a significant relationship between consumer purchase behaviour and the

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factors influencing the purchase decisions of value-added orange products in the Vidarbha region.

Overall Conclusion

The present study concludes that digital marketing strategies and various product-related factors significantly influence consumer purchase behaviour towards value-added orange products of the Vidarbha agro-processing industry. The findings reveal that consumers increasingly rely on digital platforms, including social media, online advertisements, and promotional campaigns, for obtaining product information and making purchase decisions. The descriptive analysis indicates that health benefits, product quality, and affordability are the major determinants of consumers' buying behaviour, reflecting the growing preference for nutritious and high-quality processed food products. The multiple regression analysis further confirms that product quality, price reasonability, health benefits, brand image, availability of products, and digital marketing strategies have a positive and statistically significant impact on consumer purchase behaviour. Among these factors, health benefits emerged as the most influential predictor, followed by product quality and digital marketing strategies. The study also demonstrates that the regression model explains a substantial proportion of the variation in consumer purchase behaviour, highlighting the importance of these variables in shaping purchasing decisions. Consequently, the null hypothesis was rejected, and the alternative hypothesis was accepted, establishing a significant relationship between consumer purchase behaviour and the factors influencing the purchase decisions of value-added orange products in the Vidarbha region. The study suggests that agro-processing enterprises should focus on enhancing product quality, emphasizing health benefits, strengthening brand image, ensuring product availability, and adopting innovative digital marketing strategies to improve consumer engagement, increase market penetration, and achieve sustainable growth in the competitive agro-processing sector.

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