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Social Media Virality as a Marketing Asset: Predictive Modelling of Engagement and Conversion

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Abstract

The social media has become a powerful marketing tool, which helps to connect companies and their customers, create brand names, and promote purchases. Timely spreading of posts through likes, shares, comments, and hashtags is the distinct feature of Facebook that is called viral; it plays the key role in influencing users' interaction with marketing communications. The current study analysed the concept of social media virality, as a marketing tool with the focus on the degree to which numerous engagement behaviours predict user conversion, the examples of purchasing, registering, and following a brand. The empirical investigation was conducted involving those respondents who were based in Punjab and Chandigarh regions that have undergone faster growth in digital marketing in the recent past. The research methodology followed was a quantitative one whereby data was accrued among 300 respondents by use of online survey. Responses obtained were analysed with IBM SPSS Statistics and both a descriptive statistic and a regression framework were utilized to isolate salient predictors of conversion. Results revealed that engagement behaviours such as sharing, liking, commenting, and the use of hashtags had a positive link with higher rate of conversion. It is important to note that the content sharing action and the use of hashtags became the strongest predictors of virality and conversion. Therefore, the more the users share and /or enter content through the use of hashtags, the higher the chances of achieving a positive marketing reaction. This study shows that the social media virality is an organized and measurable and predictable marketing insight as opposed to a chance event. Marketers are able to identify the most effective engagement variables and create content that provokes interaction and conversion by utilizing the power of data-driven analytics and statistical modelling. The findings also highlight the excellence of emotionally resonant, interactive and discoverable content to regular posting habits which are repetitive and dull. The study increases the understanding of the translation of social media usage into marketing excellence and provides practical additions to businesses and digital marketing specialists, especially in the settings of Punjab and Chandigarh.

Keywords: Social Media, Brand, Virality, Facebook, Digital Marketing.

Introduction

Social media has, over the last 10 years reshaped how people and organizations interact, exchange information and make buying decisions. The unmatched growth of such platforms as Facebook, Instagram, YouTube and TikTok has redefined how businesses will market their products in a wide range of various industries, thus providing new avenues of consumer interaction and brand awareness. One of the most notable effects of this digital change is the idea of social media virality, the phenomenon according to which digital content spreading among the users of networks is drastic and extensive, often leading to an exponential increase in visibility, engagement, and sales (Berger and Milkman, 2012; Tellis et al., 2019). In the eyes of marketers, virality is not a temporary phenomenon but a quantifiable and tactical asset that has the potential to improve brand recognition, customer retention and conversion rates (Tafesse, 2020; Basri, 2023). A crucial element of data-driven marketing, where engagement metrics (likes, shares, and comments) serve as metrics of consumer intent and conversion potential, has emerged as a dominant trend in the digital ecosystem as it continues to develop (Kennedy, Kunkel, and Funk, 2021; Silva and Rajapaksha, 2023).

Indian marketing, specifically in the states of Punjab and Chandigarh, has experienced a fast digital revolution, which has been driven by the rates of internet access, low-cost mobile data, and a population that is growing more socially media conscious. Recent media coverage in the industry claims that India is among the top three markets in the world in terms of

social media usage, with more than half a billion active social media users on digital platforms every day (Malodia, Dhir, Bilgihan, and Sinha, 2022). The best fit would be Punjab and Chandigarh with their strong pool of young population and entrepreneurial environment to explore the functionality of virality as a marketing tool. Viral trends and engagement-based campaigns are becoming more extensively used by local businesses, influencers, and digital agencies in this area to convert and offer more brands and boost sales performance. However, even with the emerging popularity, sparse empirical studies quantitatively modelling the notions of virality and engagement in the context of the Indian regional milieu utilizing validated statistical models have yielded. The existence of this gap highlights the need to conduct predictive analytical research to provide engagement measurements with conversion behaviour as a quantifiable, data-driven model.

Theoretically, the cause-effect relationship between social media participation and conversion is based on both behavioural and emotional processes. Consumers engage with the content depending on its perceived relevance, entertainment, and emotional ratings (Stieglitz and Dang-Xuan, 2013; Motoki, Suzuki, and Kawashima, 2020). The viral content will often take emotional appeals, such as humour, surprise, or empathy, which motivate users to share, comment, or take action and amplify its online presence. The researchers have opined that the shares can be attributed to psychological and social motives such as the proclamation towards self-expression, the need to belong, and signalling (Liu-Thompkins, 2012; Rogers, 2018). It can also shift the perceptions, attitudes, and buying intentions of consumers as the engagement increases (Ewing, Stewart, and Mather, 2014). Regression analysis engagement and conversion predictive modelling, accordingly, offer a framework of a structured approach to determining which content factors contribute to virality and thereafter consumer behaviour in the strongest way possible.

The growth of predictive analytics has significantly enhanced the ability of marketers to process massive amounts of social media data and use the actionable insights. Particularly, regression-based models allow the researcher to measure the associations between the variables of engagement and marketing. Several linear regression models are widely used to estimate the level of engagement, and logistic regression will help to determine the factors that can influence the probability of conversion (Koch and Benlian, 2015, Prasetio and Aboobaider, 2025). The combination of descriptive statistics and regression modelling allows the researcher to not only describe the properties of the data but also explain the predictive relationships within it, which is important in ensuring the clarity and validity of the results (Kennedy et al., 2021). Such a two-sided strategy allows marketers to switch from the intuitive models, which rely on experience, to models that are based on evidence to help the organization boost its efficiency in content design, timing, and choice of platforms (Chatterjee and Panmand, 2022; Gupta and Vashishtha, 2024).

The expanding digital marketing market in regional settings like Punjab and Chandigarh is based on the measurable performance indicators. Companies, higher education, and influencers are all looking to analytical frameworks to determine the key of engagement converting into tangible conversion, i.e., whether it turns out in queries, sign-ups, or purchases. Although this is needed, the majority of local research is descriptive as opposed to being predictive in nature so that it can be used in strategic decision-making. Through descriptive and regression analysis using SPSS, the study will offer empirical data that will explain the impact of referred engagement metrics which are likes, shares, comments, and post type on the virality and conversion of social media users within the region.

This study therefore makes social media virality a measurable marketing resource and not a random event. It aims to fill the gap between marketing theory and practice with the help of a predictive modelling framework that is organized. The discussion will illuminate the most powerful elements of engagement that lead to conversions, hence contributing to theory in the field of marketing as well as providing practical implications to the regional business world, content creators and digital agencies.

Literature Review

One of the central aspects of digital marketing research has become social media virality, which is a faster spread of online content that occurs with the support of user networks, which causes numerous engagements and the possibility of higher conversion. The accumulated evidence appreciates virality as a marketing tool that will turn the silent supporters into active marketers, eventually affecting consumers' purchasing behaviour and their purchases (Berger and Milkman, 2012; Ewing, Stewart, and Mather, 2014). Early literature determined virality by computing the cross-products of emotional significance, informational utility, and social relatedness and found content created to stimulate emotion and topicality to have an improved fact and conversion potential (Liu Yu, 2012; Stieglitz and Dang-Xuan, 2013). This was further supported by

subsequent empirical research, as diffusion of viral content has been shown to be affected by both cognitive and affective variables with emotional resonance, humour and relatability contributing to increased message retention and participation by the audience (Koch and Benlian, 2015; Motoki, Suzuki, and Kawashima, 2020). In this respect, the likes, shares, comments, and impressions can be taken as the quantifiable measures of the audience response and predictors of the conversion behaviour (Kennedy, Kunkel, and Funk, 2021; Tafesse, 2020). The combination of statistical modelling with methods of computational modelling has further increased the ability of marketing research analytically, with the possibility of accurately estimating what content characteristics make a positive contribution to virality and consumer action (Silva & Rajapaksha, 2023; Bacic & Gilstrap, 2024). The predictive modelling methodology founded on regression, in particular, has developed into a standard practice of studying those relationships, as it allows the researchers to measure the impact of variables of independent engagement on the dependent variables, i.e., the purchase intention or the likelihood of conversion (Prasetio and Aboobaider, 2025; Santhiya and Kannan, 2024).

In addition to pointing to these factors as the driving force of virality, researchers have paid more attention to the mediating effect of engagement quality between exposure and conversion (Ewing et al., 2014; Tellis et al., 2019). Regression and machine learning model-based predictive analytics have shown that not all engagement will result in conversion; the depth and type of engagement beyond simple interactions or positive sentiment of expected success is a clearer predictor of marketing success (Chatterjee and Panmand, 2022; Gupta and Vashishtha, 2024). Emotional appeals, novelty of the message, and timeliness were demonstrated to optimize their user attention and to increase their sharing behaviour, which implies that virality can have predictable behavioural and temporal patterns (Basri, 2023; Rogers, 2018). This observation shows that forecasting tools can allow marketers to know when viral content is on a nosedive and when it reaches its peak so that they can maximize timing and targeting decisions. Furthermore, other researchers like Theodorakopoulos and Theodoropoulou (2025) have made contributions to this area by integrating big data analytics, influencer networks and artificial intelligence to create a type of hybrid model that incorporates emotional, contextual, and behavioural data. This type of model proves that it is possible to predict the virality of platforms such as Facebook, Instagram, and TikTok with astonishing accuracy. On the same note, Bacic and Gilstrap (2024) demonstrated that physiological and cognitive indicators, when modelled with a regression-based algorithm, improve a lot to predict user engagement outcomes.

Regarding the regional and cultural aspect, the research showed that the virality processes are contextual and not universal. In emerging markets like India, where the social media penetration rate is still increasing at an alarming rate, local cultural signals, language, and audience identity are all determiners to achieve engagements and conversions (Malodia, Dhir, Bilgihan, and Sinha, 2022; Marimuthu, Garg, and Rao, 2025). The studies of region-specific digital consumers in states like Punjab in India and cities like Chandigarh point to the necessity of culturally specific marketing messages that will have to appeal to the sensibilities and social identity of the regions in question (Rachmad, 2024). This suggests that context-specific predictive modelling (i.e., regression analysis) is able to depict how local demographic and behavioural variables interact to drive virality among the populations in specific regions. This combination of descriptive statistics and regression modelling, in turn, remains at the centre of the digital marketing research since it determines the data patterns and confirms predictions and inferences on a limited scope of social and cultural conditions (Kennedy et al., 2021; Tafesse, 2020). The methodological compatibility of descriptive summaries and regression models, especially in SPSS contexts, will provide increased statistical strength and predictability so that a marketer can glean explanatory and predictive information on their datasets (Ramkumar, 2025; Silva and Rajapaksha, 2023).

The literature also indicates that virality is a short-term and long-term marketing asset, which can only affect short-term conversions but long-term brand engagement and equity. The use of emotional appeal, timing, and network structure is mentioned several times as the main drivers of virality, with predictive modelling being a measurable way to control these factors (Basri, 2023; Koch and Benlian, 2015). Models of engagement-driven conversion, which are usually implemented based on logistic or multiple linear regression, illustrate that the quality of interaction of the audience but not its quantity is what matters the most when it comes to conversion results (Prasetio and Aboobaider, 2025; Semenda, Sokolova, and Korovina, 2024). In this way, research works by Stieglitz and Dang-Xuan (2013) and Tellis et al. (2019) are very much evidence to show that emotionally charged content spreads quicker and generates higher rates of conversion in comparison to neutral messages. Combining these findings, Gupta and Vashishtha (2024) highlighted how algorithm personalization can make content more visible and more user-responsive, which is the second confirmation of the predictive ability of regression models. At the same time, Theodorakopoulos and Theodoropoulou (2025) and Santhiya and Kannan (2024)

observed that there is a growing overlap between artificial intelligence and marketing analytics, with predictive models not only predicting but also providing the optimal approach to campaign design. In general, the available literature highlights that predictive regression models, in the case of their contextualization via cultural sensitivity and backed with descriptive data analysis, provide a holistic, evidence-based treatment of the concept of virality as a marketing resource.

Overall, recent studies illustrate a consistent pattern in showing that social media virality is a quantifiable concept that links the level of engagement to the possibility of conversion. Descriptive analysis can give understanding on the ground of the behaviour of the audience, whereas predictive modelling based on regression can give empirical validation and predictive insight. This twofold solution suits both the theoretical and practical demands of new-day marketing, particularly in the social media age of India. Through descriptive and regression analysis of the data that has been gathered in the Punjab and Chandigarh, marketers can not only absorb the regional peculiarities of online interactions but also create the predictive structures that may direct the optimization of the campaigns and the personalization of the contents. The merging of behavioural understanding, emotional analytics, and predictive modelling experiences virality as a random event being converted into the controlled and methodical incorporation of marketing resources is the one that connects the engagement metrics and conversion efficiency in the current digital ecosystem (Berger and Milkman, 2012; Ewing et al., 2014; Tafesse, 2020; Theodorakopoulos and Theodoropoulou, 2025).

Objectives of the Study

1. To analyse the impact of social media engagement on user conversion.
2. To identify which engagement metrics (likes, shares, comments, hashtags) most influence virality.
3. To develop a predictive model linking engagement behaviour with marketing conversion.
4. To provide insights for improving digital marketing strategies in Punjab and Chandigarh.

Research Methodology

The current study took a quantitative research design and aimed at clarifying the relationship between variables that are related to social media usage and a subsequent conversion behaviour of users in the Punjab and Chandigarh areas. The methodology incorporated both descriptive analysis and regression modelling to produce an all-inclusive picture and a predictive model of the empirical data. The descriptive statistics have been used in order to condense the demographic and engagement attributes of the respondents and the regression analysis has been used to determine the engagement variables that have a significant impact on virality and conversion outcomes. Such a design was considered to be appropriate since it allows for measuring associative relationships and testing hypotheses based on statistical modelling. The data collection was carried out using a cross-sectional survey, which focuses on information at one point in time within a specified population, which conforms to previous research on digital marketing studies that rely on similar predictive models (Kennedy, Kunkel, and Funk, 2021; Tafesse, 2020).

The sample population consisted of active social media users in Punjab and Chandigarh who had encountered marketing or branded content on online platforms like Facebook, Instagram, YouTube and X (formerly Twitter). The sample was also limited to participants at the age of 18 years or higher who had participated in advertisements or campaigns on social media within the last half year. The purposive sampling strategy was used to make sure the participants were also relevant to the research purpose and they were also actively engaged in the content of social media marketing. The completed sample of 300 respondents met the traditional rule of thumb about regression analysis, i.e., at least fifteen to twenty cases per predictor variable to attain sufficient statistical power (Kennedy et al., 2021). It has a heterogeneous sample that includes gender, education and occupation, which contributes to the strong validity of the finding in the regional context.

The data were collected with the help of a structured online questionnaire that was used with Google Forms. The tool was divided into three main categories, namely demographic statistics, interaction behaviour and conversion-based questions. The respondents were asked to talk about their regularity of using social media, platform and behavioural indicators, including liking, sharing, commenting, and purchasing via social platforms. The items of engagement and conversion were calculated based on already validated scales in the marketing literature (Berger and Milkman, 2012; Silva and Rajapaksha, 2023) and evaluated using a five-point Likert scale (including 1 = Strongly Disagree and 5 = Strongly Agree). The

instrument has been reviewed by three experts in the domain area to test its content validity and pre-tested on 25 participants of the intended population to test its clearness and reliability.

There were dependent and independent variables used in the study. The dependent variable was conversion behaviour, which has been operationalized as a binary categorical variable (converted = 1, not converted = 0) into whether a respondent acted on a post by social media or not (had no posters). The independent variables comprised six engagement methods: number of likes, number of shares, number of comments, use of hashtag, content type (text, image, video) and frequency of post. These variables were not chosen randomly but were the already known predictors of the virality and engagement (Tafesse, 2020; Koch and Benlian, 2015; Stieglitz and Dang-Xuan, 2013). The regression coefficients (β) had been used to estimate the strength of dependence as well as the strength of direction of the relationship between every engagement variable and the likelihood of conversion. Conventional p-values ($p < 0.05$) were used to evaluate the model significance, and the Cox and Snell and Nagelkerke pseudo-R^2 statistics were used to assess the overall model fit. Variance Inflation Factor (VIF) tests were used to ensure that multicollinearity did not occur, with every VIF value of the predictors coming below the critical 5 value. Also, the Hosmer-Lemeshow statistic was used to evaluate the calibration of the model.

To determine reliability, Cronbach 0alpha was used, and the coefficient of alpha was determined to be as much as 0.87 which is high and demonstrates high internal consistency between the scale items. The content validity was determined through the review of the panels of experts, while construct validity was revealed through the correspondence of questionnaire questions to already tested constructs in the marketing literature (Koch and Benlian, 2015; Berger and Milkman, 2012). The diagnostics of residuals were performed to ensure that the assumptions of normality and homoscedasticity were met.

Analysis

The objectives of the study were accomplished using both descriptive statistics and binary logistic regression models. The descriptive analysis provided a synthesis of the descriptive matters and social media behaviour of the respondents, and the regression analysis determined the engagement variables that had a statistically significant impact on conversion results.

Descriptive Statistics

The demographic profile of the respondents is outlined in table 1 below. Out of the 300 participants, 54 per cent were male and 46 per cent were female. Respondents (62 percent) fell within the 18-30-year age bracket and 28 percent of respondents fell within the 31–45-year age bracket with only 10 percent falling above 45 years. Around 72 percent consulted belong to the category of students or young adults, which highlights the prevalence of younger, digitally **mature users of Punjab and Chandigarh.**

Table 1 Demographic Profile of Respondents

Demographic Variable	Category	Frequency	Percentage (%)
Gender	Male	162	54.0
	Female	138	46.0
Age Group (Years)	18–30	186	62.0
	31–45	84	28.0
	Above 45	30	10.0
Occupation	Student/Professional	216	72.0
	Business Owner	48	16.0

Demographic Variable	Category	Frequency	Percentage (%)
	Other	36	12.0

The demographic composition confirmed that social media usage was highest among younger audiences, particularly students and professionals. This supported previous findings that younger users exhibit greater engagement with online marketing content (Tafesse, 2020; Kennedy et al., 2021).

Social Media Engagement Behaviour

Table 2 below summarized the descriptive statistics of key engagement variables, including likes, shares, comments, hashtag use, and post frequency.

Table 2

Engagement Variable	Mean	Standard Deviation	Minimum	Maximum
Likes (per post)	4.12	0.79	2.0	5.0
Shares (per post)	3.95	0.82	2.0	5.0
Comments (per post)	3.68	0.76	2.0	5.0
Hashtag Usage	4.01	0.88	1.0	5.0
Post Frequency	3.57	0.93	1.0	5.0

The results indicated that respondents reported moderate-to-high levels of engagement across all dimensions, with the highest mean observed for *likes* (M = 4.12) and *hashtag usage* (M = 4.01). This implied that visual appeal and discoverability through hashtags played significant roles in enhancing social media virality. The low standard deviations (less than 1.0) reflected consistent behaviour across respondents.

Testing Model Assumptions

Prior to conducting regression analysis, diagnostic tests were performed. The Variance Inflation Factor (VIF) values for all independent variables ranged between 1.12 and 2.34, well below the threshold of 5, indicating no multicollinearity problem. The Durbin–Watson statistic was 1.87, suggesting independence of residuals. The Hosmer–Lemeshow test yielded a significance value of 0.41, confirming the model's goodness of fit.

Binary Logistic Regression Analysis

To predict the likelihood of conversion, **a binary logistic regression model** was estimated, with conversion behaviour as the dependent variable (1 = converted, 0 = not converted). Independent variables included likes, shares, comments, hashtag usage, and post frequency.

Model Summary (Goodness of Fit)

Table 3

Model Statistic	Value
-2 Log Likelihood	287.412

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Model Statistic	Value
Cox & Snell R^2	0.43
Nagelkerke R^2	0.57

The model in table 3 above, explained approximately 57% of the variance in conversion behaviour, indicating a strong predictive capability. This supported the study's premise that engagement metrics could meaningfully predict conversion outcomes.

Table 4, Logistic Regression Analysis

Predictor Variable	B (Coefficient)	S.E.	Wald	Sig. (p-value)	Exp(B) (Odds Ratio)
Likes	0.47	0.18	6.79	0.009*	1.60
Shares	0.69	0.21	10.62	0.001**	2.00
Comments	0.36	0.17	4.48	0.034*	1.43
Hashtag Usage	0.52	0.20	6.76	0.010*	1.68
Post Frequency	0.28	0.16	3.07	0.080	1.32
Constant	-3.92	0.71	30.34	0.000**	—

*Significant at $p < 0.05$; **Highly significant at $p < 0.01$*

The logistic regression result shown in table 4 proved that shares, likes, comments, and using hashtags were notable predictors of conversion. The strongest predictor of these covariates' shares ($p = 0.001$) with odds ratio (Exp(B) = 2.00), and thus, the gain of one unit of the activity of shares was equivalent to doubling the likelihood of conversion. The use of hashtags also had a significant effect (Exp(B) =1.68), which means that higher the discoverability through hashtags, the higher the probability of conversion was. The post frequency did not show any statistical significance (p= -0.080), but it displayed a positive direction of correlation with conversion behaviour. The negative constant (-3.92) meant that the likelihood of conversion, when there is no engagement activity, was relatively low.

These findings align with the previous literature that highlights the power of social amplification and scope of networks to promote conversion (Berger and Milkman, 2012; Tellis et. al., 2019). The findings support the assumption according to which the intensity of engagement, specifically through shares and hashtags, is a critical factor of marketing effectiveness.

Classification Accuracy of the Model

The predictive accuracy of the logistic regression model was assessed using the classification table 5.

Table 5

Conversion Status	Predicted "No"	Predicted "Yes"	Correct (%)
Observed "No"	94	26	78.3
Observed "Yes"	34	146	81.1
Overall Accuracy	—	—	**79.7%**

It was found that the model accurately categorised 79.7 per cent. of cases, which means that it was a high predictive accuracy level. It was able to successfully discriminate between people who converted and those who did not based on their usage patterns affirming to the validity and reliability of the regression model in predicting results in the real world in terms of conversion.

These findings reveal that the social-media virality and measures of engagement show significant and positive relation with conversion behaviour of social-media users in Punjab and Chandigarh. In particular, a share, use of hashtags, likes, and comments are statistically significant predictors of conversion, but post frequency has a lesser influence. The explanatory power of the model (Nagelkerke R 2 = 0.57) implies that out of the total variance in conversion, over 50 percent can be explained by these variables of engagement. These results support existing studies, which have emphasized that an increased level of participation and engagement among the audience results in improved marketing results (Koch and Benlian, 2015; Kennedy et al., 2021; Tafesse, 2020).

Discussion

The present study was aimed at evaluating the levels at which primary engagement metrics on social media sites can be used to predict conversion rates, thus theorising about virality as a measurable and strategically useful marketing tool. Findings of a sampled 300 active users in Punjab and Chandigarh showed that shares, the use of hashtags, the number of likes, and the number of comments were found to be predictive of conversion behaviour with statistically significant impacts, though post frequency was found to have less powerful, though positive, relationships. These findings provide strong empirical support of the hypothesis that the marketing effectiveness has a direct impact on social media use, which is in line with the previous international studies (Berger and Milkman, 2012; Tafesse, 2020; Tellis et al., 2019).

Sharing behaviour was found as the strongest predictor in the regression frame with the odds of conversion doubling with it. This fact supports the argument by Berger and Milkman (2012) that sharing is the most effective method of digital endorsement because it boosts the scale of content reach and enhances credibility of the social believability via peer validation. Similarly, Ewing, Stewart, and Mather (2014) defined sharing as the key process of “viral contagion9 when each user is shared with other users increasing visibility and persuasive power. The influence of sharing on conversion was especially strong, in terms of the context of Punjab and Chandigarh, where community-based sharing and peer influence are both culturally meaningful.

The second significant conclusion reinforced the applicability of the use of hashtags in the conversations attaining conversion. The statistically significant correlation of the utilisation of hashtags with the conversion is a positive sign which shows that the discoverability is a critical factor in the process of virality. This conclusion is in line with the observation of Koch and Benlian (2015) and Tafesse (2020), who both indicated that content discoverability and categorisation enhance engagement by connecting posts to interested audiences. The use of hashtags in a regional context is likely to increase brand awareness within regional niche digital groups within Punjab and Chandigarh, and thus convert them in a targeted manner.

Likes and comments also proved to be important predictors of conversion, which is evidence that user interaction intensity will not translate to exposure. This trend resembles those obtained by Kennedy, Kunkel, and Funk (2021) who have discovered that the quality of interaction with the audience is a strong indicator of brand engagement effectiveness. Remarks and, especially, comments have been linked to activation and emotional involvement, which have been linked to increased purchase interest and loyalty (Stieglitz and Dang-Xuan, 2013). Within the context of the current research, remarks nurtured the social proofs and discussions about the content, which subsequently contributed to the brand trust and action.

Post frequency had a positive relationship with conversion; however, it did not reach the 0.05 point of significance. This implies that higher the frequency of posting, the more it might not translate to high conversion, unless the material is meaningful and captivating. Such a result is similar to that of Basri (2023), who noted that posting too many times without a plan can result in audience apathy instead of interest. It therefore follows that consistency should be intertwined with content relevance and emotional enticement.

In general, the regression model had a high explanatory power with Nagelkerke R 2 = 0.57 and typically accounted 57 % of the variances in conversion behaviour. The classification of 79.7 % percent proved that the model was highly reliable in

predicting the results on conversion depending on the metrics of engagement. These findings endorse the fact that the social media virality can be successfully modelled through such quantitative methods as regression analysis-it becomes possible to turn a phenomenon that used to be considered spontaneous into a predictable marketing asset based on data.

The results align with emotion-driven and network-diffusion theories of digital marketing, which postulates that feelings and personal relations provide the fundamentals of sharing and conversion behaviours (Motoki, Suzuki, and Kawashima, 2020; Rogers, 2018). Specifically, the results of the research support the thesis according to which the actual outcome of virality is determined by emotionally salient content, peer sharing, and visibility mechanisms (e.g. hashtags). In the case of marketers in Punjab and Chandigarh, it means that creating emotionally compelling, shareable, and searchable content could result in a significant increase in the marketing performance and the rates of conversions.

Moreover, the investigation expands the current literature by confirming these theoretic connections in the Indian regional environment, which has not been heavily represented in the virality research on the globe. It is evidenced by the findings that the patterns identified in the Western setting, including the predictive value of engagement, would exist among Indian users, although they are moderate due to the cultural specifics, including collectivism and community orientation (Malodia, Dhir, Bilgihan, and Sinha, 2022). Therefore, the study is a part of the developing discussion of the local consumer behaviour-global digital marketing principal interaction.

Theoretical Implications

In theory, the study supports conceptualisation of social media virality as a marketing resource thus filling the gap between predictive modelling and descriptive analytics. The study confirms the relevance of regression-based predictive models in the social media marketing literature, as it empirically shows that the capabilities of engagement variables are strong predictors of conversion. It builds on works of Berger and Milkman (2012) and Tellis et al. (2019) putting the issue of virality into a context of an emerging market. The results also confirm the information-diffusion theory, which assumes that the spread of information is related to patterns of interpersonal communication and the attractiveness of the message, and the engagement theory, which prioritizes interaction as a promoter of consumer decision making.

Practical Implications

In the practical context, the findings give the actual guidelines to the marketers, advertisers and social media planners in Punjab and Chandigarh. First, the predictive power of shares and hashtags is strong, which indicates that when making a campaign, it should focus on creating dissemination-friendly content and making it easier to discover. Sharing by users should be encouraged, competitions are possible, and trends on the hashtags can be used to significantly increase the conversion rates. Second, since conversions are also predicted by the number of likes and comments, marketers should focus on achieving interactive communication instead of using a one-way promotion post. Third, the discovery that over posting is not always helpful in a uniform way indicates the need to find a strategic way to post information depending on the sensitivity of the audience and not the frequency. Lastly, the regression model created in the present work can be used by digital marketing companies in Punjab and Chandigarh as a diagnostic mechanism to predict the effectiveness of the campaigns and use its resources more wisely.

Limitations of the Study

Irrespective of its contributions, the research is also limited to some degree. To begin with, being a cross-sectional study, it makes them capture engagement and conversion behaviours at a given point in time, which limits the ability to make causal conclusions. Two, self-reported data comes with the risk of response bias since the respondents could under rate or overrate the reality of their real internet use. Third, the sample was geographically restricted to Punjab and Chandigarh thus restricting the generalisability of findings to other parts of India. Further research by adopting a longitudinal design or expansion of sampling frame to cover varied geographic and demographic samples would be welcome. Furthermore, sentiment analysis or focus group behaviour may be considered qualitative methods to enhance knowledge on the emotional motivators of virality.

Conclusion

The current study concludes that social media virality is a measurable and predictable marketing resource, and variables of engagement can be calculated decisively that will primarily affect the conversion behaviour. By combining descriptive and logistic regression analysis, it was found that the role of shares, hashtags, likes, and comments are decisive in determining whether marketing content will be acted upon by users. The study was managed to convert subjective marketing intuitions into empirical evidence by using SPSS-based modelling in the form of a logistic regression. The findings support the fact that, when the engagement is measured, modelled, and optimised, it no longer happens by chance; on the contrary, it becomes a strategically plausible phenomenon. The findings have implications to digital marketers and businesses operating in Punjab and Chandigarh since emphasis should be placed on shareable content, discoverable content, as well as emotionally resonating content in a bid to improve the marketing results. The research also provides a future scholar with a replicable framework on their efforts to use predictive analytics in digital marketing. To conclude the study, the authors illustrate that by combining behavioural wisdom and statistical modelling, marketers can be empowered and create data-driven strategies that translate engagement into tangible business outcomes to make virality a science as well as a strategy in an ever-changing world of digital marketing.

References

1. Bačić, D., & Gilstrap, C. (2024). Predicting video virality and viewer engagement: a biometric data and machine learning approach. *Behaviour & Information Technology*, *43*(12), 2854-2880.
2. Basri, W. S. (2023). Emotional Dynamics in Viral Marketing: Unravelling the Impact of Content, Audience, Platform, and Timing. *International Journal of eBusiness and eGovernment Studies*, *15*(3), 1-22.
3. Berger, J., & Milkman, K. L. (2012). What makes online content viral?. *Journal of marketing research*, *49*(2), 192-205.
4. Chatterjee, S., & Panmand, M. (2022). Explaining and predicting click-baitiness and click-bait virality. *Industrial Management & Data Systems*, *122*(11), 2485-2507.
5. Cheung, M., She, J., Junus, A., & Cao, L. (2016). Prediction of virality timing using cascades in social media. *ACM Transactions on Multimedia Computing, Communications, and Applications (TOMM)*, *13*(1), 1-23.
6. Ewing, M. T., Stewart, D. B., Mather, D. R., & Newton, J. D. (2014). How contagious is your viral marketing campaign? A mathematical model for assessing campaign performance. *Journal of Advertising Research*, *54*(2), 205-216.
7. Gupta, H., & Vashishtha, D. S. (2024). Machine Learning in User Engagement: Engineering Solutions for Social Media Platforms. *Iconic Research And Engineering Journals*, *8*(5), 766-797.
8. Kennedy, H., Kunkel, T., & Funk, D. C. (2021). Using predictive analytics to measure effectiveness of social media engagement: A digital measurement perspective. *Sport Marketing Quarterly*, *30*(4), 265-277.
9. Koch, O. F., & Benlian, A. (2015). Promotional tactics for online viral marketing campaigns: how scarcity and personalization affect seed stage referrals. *Journal of Interactive Marketing*, *32*(1), 37-52.
10. Liu-Thompkins, Y. (2012). Seeding viral content: The role of message and network factors. Journal of advertising research, 52(4), 465-478.
11. Malodia, S., Dhir, A., Bilgihan, A., Sinha, P., & Tikoo, T. (2022). Meme marketing: how can marketers drive better engagement using viral memes?. *Psychology & Marketing*, *39*(9), 1775-1801.
12. Marimuthu, P., Garg, A., Rao, A., & Thakur, A. (2025, May). Evaluation of Instagram Performance Metrics on Technology and Innovation Hashtags. In *2025 6th International Conference for Emerging Technology (INCET)* (pp. 1-5). IEEE.
13. Motoki, K., Suzuki, S., Kawashima, R., & Sugiura, M. (2020). A combination of self-reported data and social-related neural measures forecasts viral marketing success on social media. *Journal of Interactive Marketing*, *52*(1), 99-117.
14. Prasetio, A. B., bin Mohd Aboobaider, B., & bin Ahmad, A. (2025). Predicting Customer Conversion in Digital Marketing: Analyzing the Impact of Engagement Metrics Using Logistic Regression, Decision Trees, and Random Forests. *Journal of Digital Market and Digital Currency*, *2*(2), 181-204.
15. Rachmad, Y. E. (2024). *Transforming Digital Consumers: The Power of Viral Diffusion in Consumer Behavior*. PT. Sonpedia Publishing Indonesia.

16. Ramkumar, N. (2025, July). AI-Powered Social Media Content Optimization: Enhancing Engagement, Personalization, and Efficiency. In *2025 International Conference on Computing Technologies & Data Communication (ICCTDC)* (pp. 1-10). IEEE.
17. Rogers, R. (2018). Digital traces in context| Otherwise engaged: social media from vanity metrics to critical analytics. *International Journal of Communication*, *12*, 23.
18. Roring, R. S. Decoding Social Media Virality: Measuring Impact, Influence, and Engagement in the Digital Age. *Influence, and Engagement in the Digital Age*.
19. Santhiya, R., & Kannan, K. (2024). THE IMPACT OF SOCIAL MEDIA MARKETING AND MACHINE LEARNING APPLICATIONS IN DIGITAL ADVERTISING. *Journal of Philanthropy and Marketing*, *4*(1), 528-540.
20. Semenda, O., Sokolova, Y., Korovina, O., Bratko, O., & Polishchuk, I. (2024). Using social media analysis to improve E-commerce marketing strategies. *International Review of Management and Marketing*, *14*(4), 61-71.
21. Stieglitz, S., & Dang-Xuan, L. (2013). Emotions and information diffusion in social media—sentiment of microblogs and sharing behavior. *Journal of management information systems*, *29*(4), 217-248.
22. Tafesse, W. (2015). Content strategies and audience response on Facebook brand pages. *Marketing Intelligence & Planning*, *33*(6), 927-943.
23. Tellis, G. J., MacInnis, D. J., Tirunillai, S., & Zhang, Y. (2019). What Drives Virality (Sharing) of Online Digital Content? The Critical Role of Information, Emotion, and Brand Prominence. *Journal of Marketing*, *83*(4), 1-20. https://doi.org/10.1177/0022242919841034 (Original work published 2019)
24. Theodorakopoulos, L., Theodoropoulou, A., & Klavdianos, C. (2025). Interactive Viral Marketing Through Big Data Analytics, Influencer Networks, AI Integration, and Ethical Dimensions. *Journal of Theoretical and Applied Electronic Commerce Research*, *20*(2), 115.