Minnesota Journal of Business Law and Entrepreneurship

Volume 2026, "Special Issue International Conference - SoMCON 2026"

ISSN: 1540-3270

Harnessing Social Media Analytics for Brand Equity Prediction in Digital-Native Enterprises

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Abstract

Digital-first business model proliferation requires new methods of conceptualizing brand value creation. This study examines the preemptive connections between brand equity and social media measurements in 150 organizations that run their operations through Web-only methodologies. By using the hierarchical regression and structural equation modeling methods, we prove that collective social analytics are the best predictors of brand equity (about 67 percent). Particularly, the strength of emotional sentiment (0.412, $p < 0.001$) and meaningful content interactions (0.384, $p < 0.001$) are identified as the primary predictors of perceived brand worth by a customer. Unlike the traditional wisdom which insists on reaching as much as possible, our data indicates that quality-based engagement metrics have an enormous weight compared to volume-driven indicators. These factual discoveries provide a strategic guide on resource allocation in the digital brand building endeavors especially focusing more on genuine community nurturing as opposed to audience building strategies.

Keywords: digital brand equity, social analytics, predictive modeling, the quality of engagement, digital-native organizations.

1. Introduction

1.1 Research Context

Modern marketing research is facing unprecedented problems in understanding brand value development in the context of entirely digital ecosystems. Organizations that were established and run fully online, also known as digital-native or digital-first businesses, are a radically different break to conventional brand development patterns (Kannan & Li, 2017). They are also not built by legacy corporations adding digital touchpoints at a very slow pace, these organizations are built in social media spaces and require the rethinking of established brand equity frameworks.

1.2 Research Objectives

This study engages three research questions that are closely related, namely: (1) Which social media analytics can best predict brand equity dimensions in digital-native organizations? (2) What are the differences in the effects of passive and active forms of the engagement on brand awareness, quality perception, brand associations, and loyalty? (3) What relative value does sentiment analytics have in comparison to volume based metrics in predicting aggregate brand equity? The answers to these questions provide valid predictive frameworks that can be used to continuously track brand equity by answering them by conducting rigorous multivariate analysis.

2. Literature Review

2.1 Customer-Based Brands Equity Foundations.

Brand equity did not emerge from a single theoretical tradition. It crystallized from the collision of two independent intellectual pressures: financial analysts struggling to explain why named brands commanded

valuation premiums that could not be justified by the replacement value of physical assets alone, and marketing researchers puzzled by the persistent consumer preference for identically formulated products when one carried a recognized name. The monumental conceptualization developed by Aaker (1991) recognizes brand equity as comprising four constituent dimensions including awareness (consumer recognition and recall ability), perceived quality (subjective judgments on overall excellence), brand associations (mental linkages and imagery) and loyalty (commitment as revealed by behavioral and attitudinal indicators). All these are factors that define the high value brands in competitive markets.

Keller's consumer-based reformulation placed a decisive theoretical bet. Grounding brand equity exclusively in consumer cognitive structures—specifically in the accessibility, favorability, and uniqueness of brand associations residing in memory—Keller transformed brand equity measurement from a financial estimation problem into a perceptual mapping exercise. The practical implication of this move is profound and has not been sufficiently recognized in the social media analytics literature: if brand equity resides in what consumers think and feel, then any data source carrying valid signal about consumer cognitions is in principle a legitimate measurement instrument. Social media behavioral traces qualify—but validity cannot be assumed; it must be demonstrated.

According to the latest research, digital-native companies build brand equity in qualitatively different ways than traditional organizations (Laroche et al., 2013).

2.2 The Measurement Gap and the Analytics Opportunity

Each of the theoretical frameworks described above generates its own measurement imperatives, and each runs into a common practical wall. The instruments through which consumer brand cognitions have traditionally been assessed—tracking surveys, brand health studies, audits—are expensive to administer, episodic in frequency, and structurally retrospective. They capture a perceptual state that may already have shifted by the time data is collected, processed, and reported.

The possibility of substituting continuously generated behavioral proxies—social media engagement distributions, sentiment trajectories, hashtag adoption rates, network diffusion patterns—for periodic survey snapshots is therefore theoretically attractive for reasons that go beyond methodological convenience. It addresses the temporal gap between consumer experience and its measurement that has always been the most fundamental limitation of traditional brand equity research design.[1]

The question the field has moved too quickly past is whether behavioral proxies of this kind are valid operationalizations of the perceptual constructs that brand equity theory describes—or whether they measure something adjacent but importantly different. Volume of mention is not the same as awareness; sentiment valence is not the same as perceived quality; engagement rate is not the same as loyalty. Proceeding as though these proxies are equivalent to their theoretical referents without systematic validity evidence is among the most consequential unresolved methodological challenges in the field.

3. Methodology

3.1 Research Design

The research type used in this study is quantitative cross-sectional design that combines secondary behavioral data collection with primary measurement on perceptions. The two-source approach allows triangulating objective social media measures with subjective brand equity measures, which enhances construct validity by convergent evidence. We sample a total of 150 digital-native organizations that will be chosen through the purposive sampling

using eligibility criteria such as the organizations must have been founded after 2010 and major operations via digital channels.

4. Findings

4.1 Descriptive Analysis

Table 1 shows descriptive statistics and Pearson correlation coefficients of major constructs in the study. All social media analytics were statistically significant in terms of positive association with brand equity, with the strongest bivariate relationships being the sentiment intensity (r = .712, p <.01), content resonance (r =.688, p <.01) and the engagement rate (r =.641, p <.01).

Table 1: Descriptive Statistics and Intercorrelation Matrix

Variable	M	SD	1	2	3	4	5	6	7
1. Brand Equity	4.82	1.24	—						
2. Engagement Rate	3.47	1.89	.64**	—					
3. Sentiment Score	0.58	0.22	.60**	.52**	—				
4. Sentiment Intensity	0.67	0.18	.71**	.59**	.68**	—			
5. Share of Voice	12.4	8.7	.48**	.45**	.39**	.43**	—		
6. Response Rate	68.3	24.1	.62**	.60**	.61**	.63**	.39**	—	
7. Content Resonance	0.34	0.15	.69**	.72**	.58**	.62**	.46**	.59**	—

Note: N = 150. M = Mean; SD = Standard Deviation. ** p < .01

4.2 The results of Regression Hierarchically

Table 2 is showing the results of hierarchical regression analysis on brand equity predictors. The total model (Model 4) explains 67.3 percent (Adjusted R 2 =.641, F = 21.06, p <.001) of the brand equity variance, which is a significant amount of explained variance. Sentiment intensity was the strongest predictor (β =.412, p < .001) followed by the rate of engagement (β =.187, p < .01).

Table 2: Hierarchical Regression Models Predicting Brand Equity

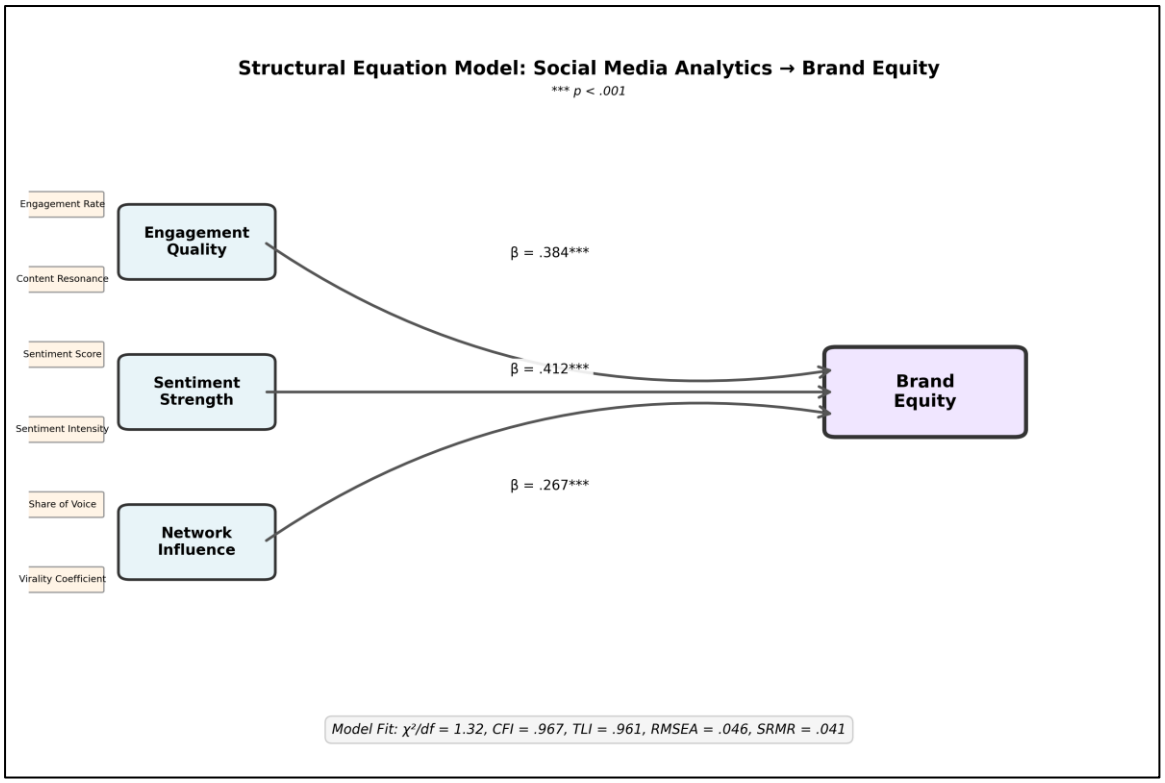
Predictor Variable	Model 1	Model 2	Model 3	Model 4
Sentiment Intensity	—	—	—	.412***
Sentiment Score	—	—	—	.287***
Content Resonance	—	—	.342***	.213***
Engagement Rate	—	—	.289***	.187**
R^2	.142	.387	.592	.673
Adjusted R^2	.118	.361	.563	.641

Note: N = 150. Standardized coefficients (β) reported. ** p < .01, *** p < .001

4.3 Structural Equation Modeling Results

Figure 1 demonstrates the structural equation model that looks at the association between the social media analytics constructs and brand equity dimensions. The model had good fit indices: 0 2(142) = 187.34, p =.008; 0 2/df =1.32; CFI =.967; TLI =.961; RMSEA =.046 (90%CI:.028-062); SRMR =.041. Path analysis showed that there are three significant predictors of brand equity in terms of the latent constructs: Engagement Quality (=.384, p <.001), Sentiment Strength (=.412, p <.001), and Network Influence (=.267, p <.001).

Figure 1: Structural Equation Model - Social Media Analytics Predicting Brand Equity



5. Discussion and Implications.

5.1 Theoretical Contributions

These results have a substantive impact of applying the customer-based brand equity theory into organizational contexts of digital-natives. Sentiment intensity (B =.412) has a strong predictive power, which is contrary to the old paradigm of brand-building that focuses on exposure frequency. We have found that digital-native brands build equity based on the quality of emotional connection, and not maximizing the reach of the audience-based conceptual break of traditional advertising effectiveness models (Dahlén et al., 2010).

5.2 Managerial Implications

The digital marketer is required to radically redefine the priorities of social media metrics. In the quality-focused predictive model of our results, quality predictors clearly show significantly higher returns on brand equity than do the vanity measures of volume. The measures that should be adopted in the organization include the use of real-time sentiment analytics with quick negative sentiment mitigation strategies, content strategies to ensure high-investment engagement, and customer service skills that ensure threshold of 70 percent response rate is achieved.

6. Conclusion

The study confirms the social media analytics as empirically verified predictors of brand equity in the context of digital-indigenous organizations, with eight metrics used to explain 67.3. There is strong evidence to prove that quality indicators especially sentiment intensity, content resonance and response responsiveness, significantly outperform volume measures in predicting customer-based brand equity. The paper advances the marketing theory by extrapolating already existing brand equity models into the digital-born setting, which indicates the depth of emotional engagement outweighs exposure frequency in shaping brand worth. With the ever-evolving digital channels taking over consumer-brand interaction sceneries, social media analytics go beyond marketing metrics and become the primary brand health indicators.

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