



Social Media Analytics and Brand Engagement: A Conceptual Framework

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Abstract : Environmental conditions are currently shaped by brands that exist in a universe of data created by every post, comment and share; social media analytics (SMA) is today's common day-to-day tool of the manager. However, the body of research that integrates analytical ability into brand engagement and subsequently to brand outcomes still has a fragmented portfolio of articles related to: brand engagement measurement, content strategy, influencer marketing and text and sentiment analytics, as well as artificial intelligence (AI). These streams are incorporated into this conceptual paper through the indigenously developed synthesis of the recent peer-reviewed research in a purposive, theory-building approach. We suggest a new integrative model that argues that more “wider and deeper” the SMA capability, the higher the quality of insight; insight quality leads to content, context and platform fit; fit leads to engaging behaviors used in consuming, contributing and creating insight; and the value of engaging behaviors correspond to value of brand outcomes. Seven propositions are argued, three of which are moderating conditions, product type, platform and content context and governance and authenticity. The paper makes a contribution by connecting the capability of analytics to the engagement behaviors in a causal chain, by setting out an explanation of why more capable analytics don't guarantee better engagement, and by articulating a research agenda to be explored in the future. Issues regarding management perspectives in the investment of analytics and content planning are discussed.

IndexTerms - social media analytics; brand engagement; consumer engagement behavior; sentiment analysis; influencer marketing; artificial intelligence; conceptual framework

I. INTRODUCTION

Social media has emerged as key communication zones for brands and consumers. Brands do publish content, consumers respond to that content, comment on that content, and they even generate their own and all of this leaves a certain digital footprint. With the number of metrics for the definition and measurement of engagement on platforms, and the increasing number of third-party metrics, several scholars and practitioners have identified several indicators of social media engagement [1–4] but the definitions of engagement as seen in literature leave scholars and practitioners to ponder the concept as a poly-tonic and multi-dimensional phenomenon. An ensuing survey of customer engagement studies on social media also charts its antecedents, decisions and outcomes, as well as theories and contexts and methods for studying customer engagement in the case of social media.

But brands have also seen a rapid growth of the number of tools for which they can use in analyzing. Now text can be processed like the data it represents at scale [3], sentiment can be extracted, using two techniques: by using a dictionary [4] and by machine learning [5] and AI realize reworking the way marketing decisions are taken [6, 7]. Even with all of this progress, research on these three aspects of analytics, content and engagement, largely views them as distinct issues. Research on contents investigates what type of contents are engaging [8, 9]; research on analytics investigates how to measure related to contents [5] and research on influencers investigates the type of influencers who deliver the content [10]. This is missing from the literature: the step-by-step translation of the capability of an organization to analyze into engagement behavior and into the resulting brand outcomes – and the conditions under which this can be done well.

This paper is an attempt to fill that void. It contains two research questions. RQ1: How does social media analytics capability impact consumers' engagement behavior and brand outcomes? RQ2: When and under what circumstances do these mechanisms strengthen and when do they weaken? As a response to them, a conceptual framework is formulating and seven research propositions are developed. The paper has three contributions. Firstly, it brings together independent chains of work into a single chain beginning with the Analytics capability and ending with the outcomes of brands. Second, by separating passive and active engagement behavior from content to brand outcomes, it allows us to understand that engagement is not a one-step process, but something that takes place in between the content and the brand outcome. Third, it specifies boundary conditions product type, platform and content context and then governance and authenticity those accounts for the absence of universal improvement, namely, with greater analytical sophistication.

The paper is organized as follows: The literature review is found in the second section. The theory building approach is described in Section 3. The framework and propositions are given in Section 4. In section 5 there is an exploration of theoretical implications and managerial implications and in section 6 there are limitations and directions for future research.

II. THEORETICAL BACKGROUND

2.1 Social media engagement as a multidimensional construct

The topic of customer engagement has been highly studied. Lim et al. [11] provide a snapshot of the previous, current and future research efforts in the field of customer engagement, and Lim and Rasul [2] narrow the lens of their analysis to specifically study the customer engagement experience that occurs on social media. The concept of engaging customers goes beyond transactions as considered by Kumar et al. [12] in the research review of engaging customers in service settings. In the realm of social media in particular, Trunfio and Rossi [1] account for the conceptualization and measurement of engagement, which include quantitative and qualitative measures as well as the consumers' online brand-related activities perspective. One of the important lessons to be drawn from this is that visible interaction is only a small component of what engagement is.

A key approach fleshed-out is through the degree of behavioral involvement. Dolan et al. [8] categorize behaviors into three types: consuming, contributing and creating; they demonstrate that the various types of content are related to passive and active engagement. Based on this distinction, this distinction comes naturally to analytics and each level has a different type of data and thus requires different types of analyses (Figure 1).

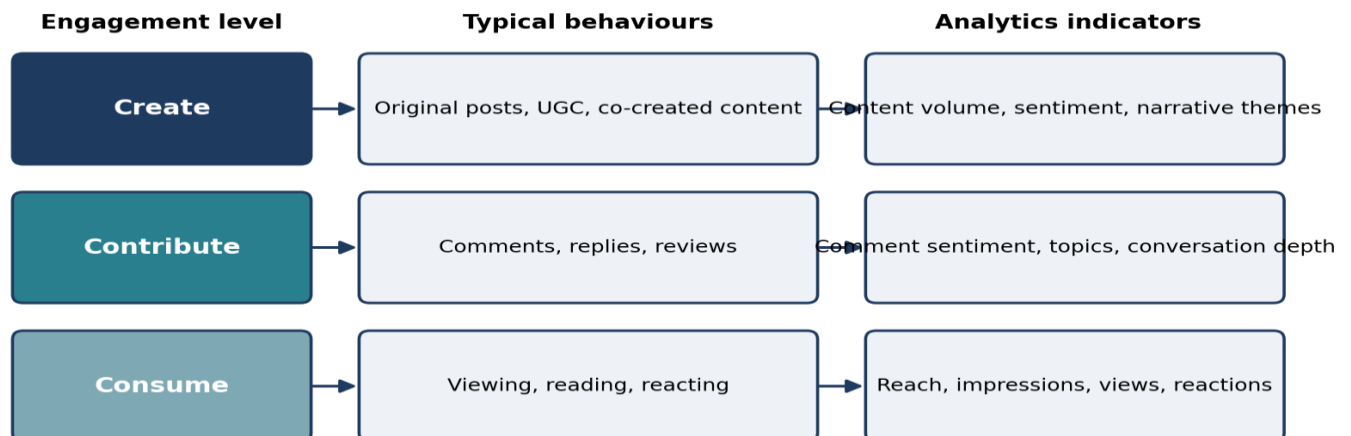


Fig.1. Engagement levels mapped to behaviours and analytics indicators

2.2 Content, format and platform

Content research reveals that both what brands post, and where, is important. As reported by Dolan et al. [8] informational content, entertaining content, remunerative content, and relational content have distinct effects, with rational testimony associated with both type of engagement (active or passive), and emotional testimony associated with passive engagement and not highly active engagement. Shahbaznezhad et al. [9] conclude that the impact on engagement of the effectiveness of content is moderated by content context, based on an examination of 1,038 posts on Facebook and Instagram. The works done on graphic elements shown how message appeals function on Instagram [13] and what elements affect the virality of online content such as information, emotion, brand [14]. The overall findings of these studies indicate that it is more related to the “content/content context/content platform match” as opposed to content match.

2.3 Influencers as a means of brand engagement.

Influencers are essentially an additional touch: who tells the message. In their study, Vrontis et al. [10] provide an overview of 68 articles regarding social media influencer marketing and they suggest an integrative framework of antecedents, mediators, moderators and outcomes. Followers' involvement with Instagram influencers [15] is examined, as are the functional pieces that underlie influencer marketing [16] and practical tips on how to manage influencer campaigns [17] and the business value of influencer marketing evidenced by bibliometrics [18]. Also, the process of social influences influences the behavior of the stakeholders [19]. The implication is that analytics can inform decision making regarding influencers similar to how it can inform decision making regarding content, especially as it comes to analytics.

2.4 Text, sentiment and machine-learning analytics

Berger et al. [3] suggest that text is a veritable treasure trove of insight that could be exploited by marketing researchers. Methods for sentence level sentiment classification have significantly been used to correlate text with sales conversion from a consumer review, and Hartmann et al. [4] discuss the correctness and use of sentiment analysis techniques. Here, in special, the work of Kübler et al. [5] contrasts metric measurements for volume-based approaches, dictionary-based approaches and machine learning-based ones for tracking the daily mindset of consumers. They determine that in the case of search goods the most sophisticated machine learning variation is their best bet, while volume is their most successful option for experiencing goods, and they point out that more sophisticated methods cost more, and take longer to process. This is important for our argument because it illustrates that analytical sophistication does not have to be a good thing.

2.5 Artificial intelligence, technology and governance

Recently, some of the contributions have brought the concept of social media analytics into the broader context of technological developments. Davenport et al. [6] discuss the future of AI and how it will shape the marketing future, while Mariani et al. [7] review the application of AI in marketing and consumer research. Libai et al. [21] consider the troubles with customer relationship management and AI, and Appel et al. [22] discuss the future of social media in marketing. Grewal et al. [23] examine the multidisciplinary nature of technology and marketing. Digital/social media marketing has been a subject burdened with various viewpoints from experts focused on AI, content management, electronic word of mouth and ethical issues – but also with its challenges which include negative electronic word of mouth and intrusive brand presence, according to Dwivedi et al. [24]. Dwivedi

et al., [25] give further shade on this aspect in relation to Generative Conversational AI. Motivating us to bring governance and authenticity as a boundary condition into our framework are these works.

Table 1 summarizes the five streams and the gap that each leaves open.

Table 1. Literature streams, representative sources and gaps addressed by the framework

Stream	Representative sources	Core insight	Gap addressed in this paper
Engagement conceptualisation and measurement	[1, 2, 11, 12]	Engagement is multidimensional; metrics are both quantitative and qualitative	Links between measurement capability and engagement outcomes are not specified
Content, format and platform	[8, 9, 13, 14]	Content effects depend on appeal, context and platform	Content decisions are rarely tied to the analytics that inform them
Influencer marketing	[10, 15, 16, 17, 18]	The messenger shapes engagement and value	Data-driven selection and evaluation of messengers is under-theorised
Text, sentiment and ML analytics	[3, 4, 5, 20]	Method choice matters, and its value is contingent	Contingencies are not integrated with engagement behaviour
AI, technology and governance	[6, 7, 21, 22, 23, 24, 25]	AI offers opportunity and raises ethical challenges	Authenticity and governance effects on engagement outcomes remain unclear

III. THEORY-BUILDING APPROACH

This paper is logically structured around conceptual theory building. For this purpose, 25 recent valid peer reviewed publications were selected from the period between 2019 and 2023 that discussed one or more of the five themes: content and platform effects, influencer marketing, text and sentiment analytics and AI and governance in marketing, while the 25 were selected to cover the field. The goal was to feature prominent reviews and typical empirical research which do not claim to be exhaustive, but this needs to be noted: the corpus is intended to be read as a purposive sample, not as a random one. We used abductive reasoning to compare the results, conceptual claims and determine where streams were not voicing their points simultaneously and what constructs and relationships we could infer to connect them. Where the direction of the relationship could be supported by either theoretical or empirical arguments from a basis in the provided stream, and could be tested using a set of data that brands or researchers can plausibly access, propositions were formulated.

A graphical representation of the analytical dimension of the framework is represented in Figure 2 where the dimensions of analytics have been organized into four levels of maturity, ranging from descriptive to prescriptive.

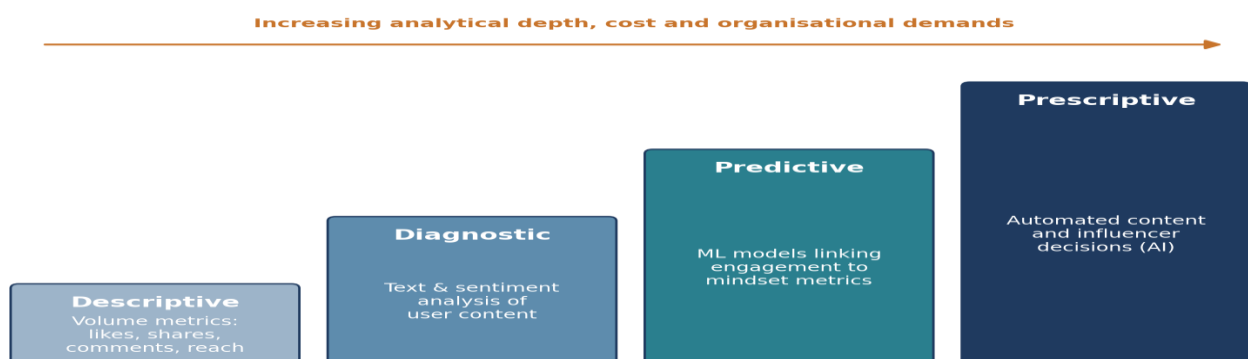


Fig.2. Social media analytics maturity ladder

IV. CONCEPTUAL FRAMEWORK AND PROPOSITIONS

4.1 Constructs

Figure 3 presents the framework. Table 2 defines its constructs and indicates how each could be measured.

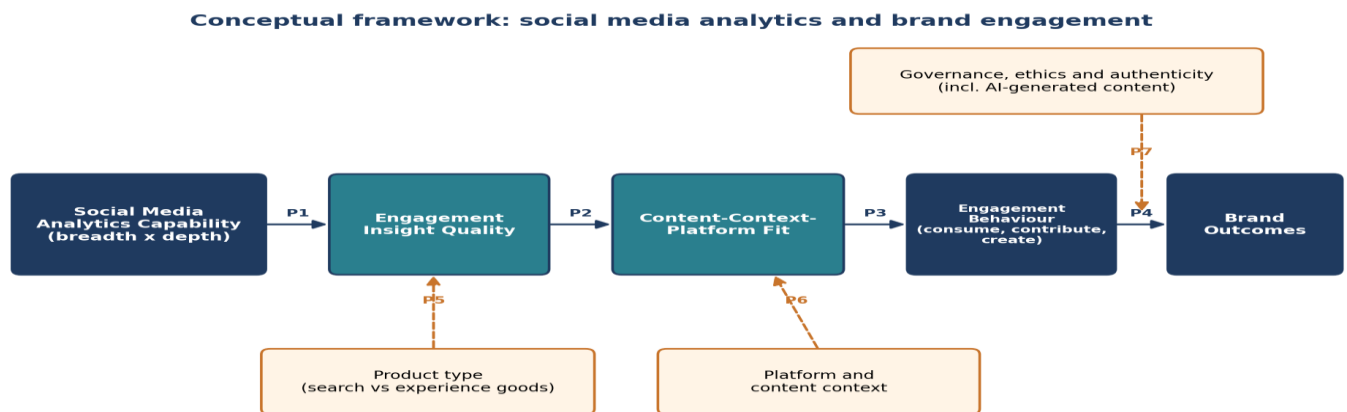


Fig.3. Conceptual framework: social media analytics and brand engagement

Table 2. Constructs, definitions and indicative measures

Construct	Definition used in this paper	Indicative measures	Anchoring sources
Social media analytics (SMA) capability	An organisation's ability to collect, process and interpret social media data. Breadth is the variety of data types used; depth is the level of analytical maturity (Figure 2)	Number of data types analysed; use of text or sentiment analysis; use of predictive or AI-based tools	[3, 6, 7]
Engagement insight quality	The accuracy, timeliness and actionability of insights about how audiences engage with the brand	Forecast accuracy; decision-maker ratings of insight usefulness; time from data to insight	[4, 5]
Content-context-platform fit	The alignment of content type and appeal, content context, platform and message source (brand or influencer)	Coded content features; platform-specific norms; influencer-brand congruence	[8, 9, 10]
Engagement behaviour	Consuming, contributing and creating behaviours directed at the brand on social media	Reach and reactions; comments; user-generated content	[1, 8]
Brand outcomes	Changes in brand perceptions, awareness and advocacy attributable to social media activity	Survey-based mindset metrics; sentiment trends; advocacy intentions	[2, 5]
Product type (moderator)	Whether the offering is mainly evaluated before purchase (search) or through use (experience)	Category classification	[5]
Platform and content context (moderator)	The platform on which content appears and the situational context of the post	Platform indicator; context coding	[9]
Governance, ethics and authenticity (moderator)	The extent to which data use and content creation, including AI-generated content, are transparent and perceived as genuine	Disclosure practices; perceived authenticity scale	[21, 24, 25]

4.2 Direct relationships

SMA capability and insight quality. Brands that draw on a wider variety of data types and more mature analytical methods can detect signals that simple counts miss. Berger et al. [3] show that textual data open up insights not available from numeric metrics, and Trunfio and Rossi [1] emphasise that engagement measurement spans both quantitative and qualitative indicators. Greater breadth and depth should therefore improve the accuracy, timeliness and actionability of insight, although the returns are expected to be contingent (see P5).

P1: Higher SMA capability, in terms of breadth and depth, is positively associated with engagement insight quality.

Insight quality and fit. Insight is valuable only if it changes decisions. Evidence that content effects vary with appeal, context and platform [8, 9, 13] implies that brands with better insight can choose formats, appeals, timing and messengers that match audience and setting. This includes decisions about influencers, whose effects depend on the characteristics of the influencer and the content [10, 15, 16].

P2: Engagement insight quality is positively associated with content-context-platform fit.

Fit and engagement behaviour. When content fits its context and platform, audiences should be more likely to move beyond passive consumption towards contributing and creating. The evidence that rational appeals support both active and passive engagement while emotional appeals mainly support passive engagement [8], and that context conditions content effectiveness [9], indicates that fit matters most for the more demanding active behaviours.

P3: Content-context-platform fit is positively associated with engagement behaviour, and the association is stronger for active behaviours (contributing and creating) than for passive consumption.

Engagement behaviour and brand outcomes. Active behaviours require greater cognitive and emotional investment and are more visible to other users, which suggests a stronger link to brand perceptions and advocacy than passive reach. This relationship is theoretically plausible but remains under-tested, because many studies rely on visible metrics alone. It also implies that analytics limited to volume measures may under-predict brand outcomes for categories in which meaning is carried by what people say rather than how many react.

P4: Active engagement behaviour (contributing and creating) has a stronger positive association with brand outcomes than passive engagement behaviour (consuming).

4.3 Moderating conditions

Product type. Kübler et al. [5] show that the best-performing sentiment extraction approach differs between search and experience goods, and that more sophisticated approaches carry higher cost and processing time. This implies that the link between analytical depth and insight quality depends on the product category.

P5: Product type moderates the relationship between SMA capability and engagement insight quality: greater analytical depth yields larger gains in insight quality for search goods than for experience goods, for which simple volume-based indicators may suffice.

Platform and content context. Because content effectiveness depends on platform and context [9], the way fit translates into engagement is expected to differ across platforms and situations. The same appeal may encourage commenting on one platform and passive viewing on another.

P6: Platform and content context moderate the relationship between content-context-platform fit and engagement behaviour, such that the effect of a given appeal on active versus passive behaviour differs across platforms and contexts.

Governance, ethics and authenticity. Dwivedi et al. [24] note that social and digital marketing opportunities coexist with challenges such as negative electronic word of mouth and intrusive brand presence, and Dwivedi et al. [25] and Libai et al. [21] highlight the opportunities and risks of AI in customer-facing activity. If audiences perceive data use as intrusive or content as inauthentic, engagement may fail to translate into favourable brand outcomes, even where behavioural metrics look strong.

P7: Governance, ethical practice and perceived authenticity moderate the relationship between engagement behaviour and brand outcomes, such that the positive association weakens when data use or AI-generated content is perceived as intrusive or inauthentic.

Table 3 summarises the propositions and suggests how each could be tested.

Table 3. Summary of propositions and suggested empirical tests

No.	Relationship	Principal support	Suggested test
P1	SMA capability -> insight quality	[1, 3]	Survey of analytics managers; structural equation modelling
P2	Insight quality -> content-context-platform fit	[8, 9, 10]	Multi-brand panel combining coded content features with analytics maturity
P3	Fit -> engagement behaviour (stronger for active behaviour)	[8, 9, 13]	Post-level analysis of behaviour types; field experiments
P4	Active engagement -> brand outcomes (stronger than passive)	[5, 8]	Linking social data to survey-based mindset metrics
P5	Product type moderates capability -> insight quality	[5]	Cross-category comparison of method performance
P6	Platform and context moderate fit -> behaviour	[9]	Multi-platform comparison; interaction effects
P7	Governance and authenticity moderate behaviour -> outcomes	[21, 24, 25]	Vignette experiments manipulating AI disclosure and data use

V. DISCUSSION AND IMPLICATIONS

5.1 Theoretical implications

The framework has three implications theoretical. First, it puts the literature on analytics away from measurement technique to focusing on capability and its downstream effects. Previous method comparisons [4, 5] provide us with some idea of which methods work best in a specific context but not a clear understanding of how their best functioning contributes to content and response choices for learners or to audience behaviors. Secondly, it maintains the separation of consuming, contributing and creating [8] and assigns an exact place to analytics in the various levels. Third, the moderating propositions serve as a justification for reconciling seemingly divergent findings: the more sophisticated the product, the more the concept is integrated the more helpful it may be (P5); strong behavioral measures should not be inconsistent with low brand measures, if the question of authenticity is raised (P7).

5.2 Managerial implications

The framework recommends that analytics investments should be tailored to context for the managers. When it comes to evaluative criteria primarily used in the context of use, richer volume indicators might be more beneficial in lower-cost scenarios; on the other hand, when looking at search goods, richer text analytics may be justified by the added cost [5]. As far as content planning, it should be focused on fit, not a uniform calendar; with influencers, it should be based on data not intuition [10]. Brands should measure active engagement, not just reach, as the measurement can be weak brand. Finally, let's recognize that transparent practices are not limited to compliance, but it is also a component of brand protection, as AI-powered content and targeting becomes more prevalent [24, 25].

VI. LIMITATIONS AND FUTURE RESEARCH

The proposed framework was empirically investigated in order to verify the proposed relationships in P1-P7. The results support the proposed link between organizational analytics capability and consumer engagement, as well as the link between AI-enabled content decision-making and consumer engagement, shedding light and empirical evidence on the relationships between these concepts. It also identifies some relationship that needs to be investigated in future research. The effects of AI-generated content and

data-use disclosure emphasize the need for transparency and consumer perceptions, highlighting the role analytics capabilities can play in supporting outcomes related to content. Effects of AI generated content and disclosure of data use provide insight into transparency and consumers consciousness which is key to supporting content related outcomes via analytics capabilities. Future studies may provide further evidence of this by an examination of the model throughout other industries and other organizational environments; and by using samples that are larger in size and are longitudinal to enhance the generalizability of the findings. Comparisons among the different categories could also yield more understanding about the effectiveness of the different analytic approaches that were tried. The current framework focuses on an aggregated level of analysis; qualitative research on analytics and content teams may help to shed more light on how information and substantive analyses are translated into concrete content decisions. Future research should also explore other moderators such as cultural context and firm size and study the negative outcomes of engagement to capture a more holistic view of AI-supported content strategies.

VII. CONCLUSION

When social media analytical information is effectively geared into content that is more congruent with the brand and more apt messengers, and when the engagement funnels results that are relevant and valuable to the brand, social media analytics helps to advance brand engagement. Empirical results confirm the hypothesized relationships within the framework, with evidence highlighting the importance of the analytical capability and content/messenger simultaneously as well as in their engagement through meaning. The results help to fill the gap in a consolidated knowledge of the ways brands leverage social media analytics for discovering audience behavior in order to leverage user insights for improved engagement. The findings also serve as a basis for future research on these connections between the different industries, platforms, and organizational contexts.

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