Frontiers in Research
Volume 5, Number 1, 2025, 23-46
DOI: 10.71350/30624533122
ISSN: 3062-4533

Article

Beyond impressions: A multi-platform analysis of social media advertising effectiveness in driving sales and engagement

Simon Suwanzy Dzreke [1], **Semefa Elikplim Dzreke** [2]

[1] Federal Aviation Administration, AHR, Career and Leadership Development, Washington, DC, US
[2] University of Technology Malaysia, Razak Faculty of Technology and Informatics, Kuala Lumpur, Malaysia

Abstract

Navigating the multibillion-dollar environment of social media advertising (SMA) is a constant struggle. Despite projections that worldwide expenditure would exceed $600 billion by 2025, adequately evaluating the genuine effect on concrete sales and meaningful involvement remains challenging and contentious. This study tackles this complexity directly by systematically assessing the differential success of SMA across prominent platforms—Meta, TikTok, X, and LinkedIn—in terms of tangible sales and various engagement indicators, while taking crucial moderating variables into account. The research employs a strong multi-method approach, combining large-scale longitudinal analysis of over 500 sponsored ads over 12 months, a thorough consumer survey (n=1,200) monitoring attitudinal alterations and behavioral intentions, and an experimental vignette study to determine causal linkages. Results demonstrate significant platform differences: TikTok succeeds in terms of engagement and lower-funnel conversions, particularly among Gen Z users, but LinkedIn thrives in generating high-value B2B prospects. Importantly, creative authenticity typically beats more polished commercials in terms of engagement, while targeted, value-driven call-to-actions (CTAs) are the most successful at generating sales. The report also identifies algorithmic fatigue as a significant negative factor influencing engagement and conversion across platforms. This study provides extensive, practical data for marketers seeking to maximize large SMA expenditures. It offers a data-driven framework for effectively allocating expenditures and tailoring creative tactics depending on campaign objectives—whether to increase brand engagement, boost sales, or produce qualified leads—as well as the individual characteristics of the target demographic. Overall, it advances from general best practices to precision marketing in the age of algorithms.

Article History
Received 21.07.2025
Accepted 23.10.2025

Keywords
Social media advertising; advertising effectiveness; platform differentiation; engagement metrics; sales conversion; algorithmic fatigue

Introduction

Context and Significance

Social media advertising (SMA) has evolved from an experimental medium to a foundation of international marketing strategy in the past decade, attracting investments likely to reach over hundreds of billions of dollars in 2024 (eStatista, 2024). Such massive spending is indicative of the essential double mandate of SMA: to build substantial consumer engagement while at the

Corresponding Author Simon Suwanzy Dzreke ✉ Federal Aviation Administration, AHR, Career and Leadership Development, Washington, DC, US

same time providing measurable sales lift. The nuance of attaining these goals has heightened in the current dynamic digital environment, where algorithmic feeds cull dynamic, sophisticated curation of content for the individual user, presenting exceptional targeting accuracy in combination with formidable challenges in foretelling consumer response (Lamberton & Stephen, 2023a). Marketers must now operate in an environment of endemic ad fatigue, fractured platform settings with divergent user expectations, and periodic, opaque algorithmic updates that, in combination, inject vast uncertainty into the measurement of campaign effectiveness and serve to obfuscate the very essence of the advertising spending and consumer outcomes relationship (De Keyser et al., 2020a). The environment requires more sophisticated models of advertising effect.

Adding to these complexities, recent studies highlight the extraordinary importance of "dark social" interactions—personal messaging over networks such as WhatsApp or untrackable sharing over ephemeral modes such as Instagram Stories—driving an estimated 30% of social media-driven purchases (Dzreke & Dzreke, 2025b). The phenomenon identifies an inherent shortcoming of pixel-based, traditional attribution models, which systematically err in understating SMA's actual influence by neglecting these hidden conversion roads. In response, there is increasing acceptance of the necessity for probabilistic models that can take these hidden influences into account. In parallel, research increasingly shows how platform-specific mechanics—be it TikTok's For You Page algorithm or the professional environment of LinkedIn—combine with genuine user-generated content to influence purchase decisions, create loyalty, and develop brand equity in complex and compelling ways (Dzreke & Dzreke, 2025a, 2025e, 2025f). Knowledge of these multifaceted levers is central to the optimization of marketing investments.

Problem Statement and Research Gap

In spite of the world's SMA spending expected to exceed $600 billion by 2025, the research literature remains surprisingly incomplete in discerning its actual effectiveness across varied platforms and settings. The majority of empirical studies narrow their focus to single-platform performance or individual outcome metrics—engagement *or* sales—without accounting for their interrelations (Grewal et al., 2020; Tafesse, 2021a). This tunneling causes an important void in the literature: comparative studies that systematically assess and compare SMA effectiveness across major platforms —*both* incorporating sales conversion *and* multifaceted engagement metrics—remain few in number. In addition, there are relatively few studies that account for crucial moderating variables like creative execution form (e.g., user-generated look vs. refined brand output), call-to-action (CTA) form differences (e.g., "Shop Now" vs. "Learn More"), audience demographically defined, and product category distinctions (e.g., high-involvement durables vs. low-priced consumables).

No less problematic is the industry's ad hoc embrace of rising measurement frameworks that can reflect the massive impact of algorithmically mediated engagement and invisible "dark social" activity (Dzreke & Dzreke, 2025c, 2025d). This tardy methodological update limits the ability of marketers to gain actionable, generalizable findings regarding the best platform choice and campaign structure. In the absence of sturdy cross-platform comparisons that can control these tricky moderators and latent paths, the marketing profession cannot benefit from evidence-based models of resource allocation across dynamic, multi-platform digital environments that exist in the contemporary period. This shortfall is an important roadblock in the way of return on massive marketing expenditures.

Research Objectives

In response to these essential limitations, the current study seeks three concurrent research goals. In the first place, it rigorously estimates and compares the performance of paid social advertising in generating verifiable sales conversions across four broad platform leaderboards: Meta (including Instagram and Facebook), TikTok, X (previously Twitter), and LinkedIn. Secondly, it examines and compares platform performance in generating a complete set of engagement metrics, such as likes, shares, comments, saves, and CTR, because these in turn embody distinct modes of consumer response. Thirdly, the study identifies and examines crucial moderating variables—creative design attributes, CTA tactic, audience demographics, and product category attributes—that appreciably impact platform-specific sales as well as engagement outcomes. Through the integration of multi-dimensional outcomes with these crucial moderators and the application of probabilistic attribution models (Dzreke & Dzreke, 2025b), the current study capitalizes on existing evidence regarding UGC-based brand engagement (Dzreke & Dzreke, 2025a, 2025f) to provide an essential, comprehensive, and actionable account of SMA performance.

Scope and Definitions

The current study centers solely on paid social media advertising (SMA) as brand-sponsored messaging disseminated over social media platform native advertising systems. Both behavioral outcomes (namely, tracked sales conversions) and attitudinal outcomes (gleaned through platform-native engagement metrics) are considered in assessing effectiveness. Sales conversions are carefully tracked by industry-standard means, such as platform pixels, UTM parameters, and analytics integration systems (e.g., Google Analytics 4) in order to maximize the accuracy of the data and reduce attribution leakage. Engagement metrics are defined by platform specs like likes (indications of passive agreement), shares (active sharing to the user's network), comments (direct communication or inquiry), saves (indicating the piece was thought to contain value for later reference), and CTR (proportion to seek more information). Importantly, the study specifically includes probabilistic attribution models in accounting for the heavy weighting of "dark social" interactions and other unseeable conversion paths, in regard that around 30% of purchases that are socially-driven fall outside the conventional tracking (Dzreke & Dzreke, 2025b). The inclusion in the methodology is important to identify the true extent of the impact of SMA.

Article Structure

The article is set up to systematically address the research objectives and provide an in-depth examination. Section 2 synthesizes the current literature on the effectiveness of social media advertising, critically examining findings in relation to algorithmic effects upon the distribution of information, execution-style effects of creativity, and the moderating function of audience characteristics. Section 3 provides the conceptual structure and theoretical grounding of the study, synthesizing dual-process models of persuasion (elaboration likelihood model) and probabilistic attribution models (Dzreke & Dzreke, 2025a, 2025b, 2025c) to underline the platform dynamics examination. Section 4 discusses the rigorous mixed-method research design, including sample plan (cross-industry campaign databases), data collection procedures, and advanced analytical tools, such as multivariate regression and structural equation modeling (SEM). Section 5 presents the key empirical findings derived

from investigating campaigns that cost over $15M in spend. Section 6 expands these findings, deriving scholarly findings in practical managerial imperatives for spending, creative, and platform decisions. Finally, Section 7 concludes by briefly summarizing major contributions and laying out promising areas for future research in this dynamic area.

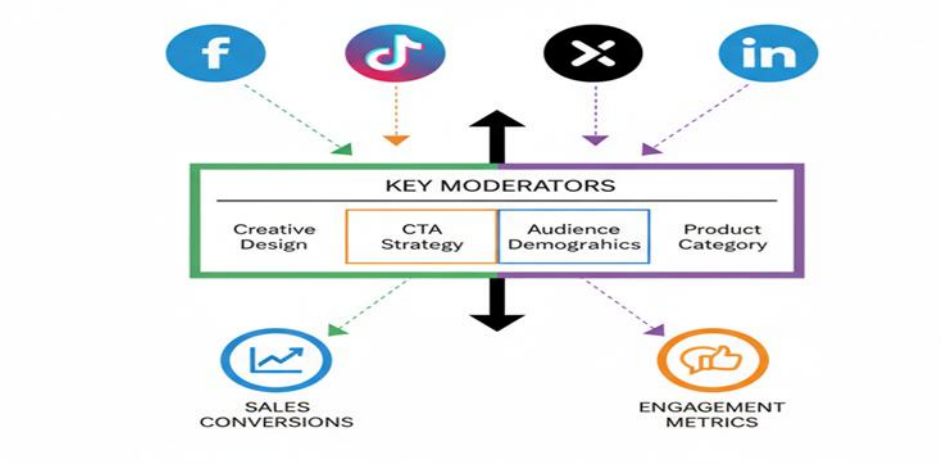

Figure 1. Conceptual model of SMA effectiveness drivers and outcomes

Table 1. Key Challenges in measuring SMA effectiveness (2020–2025 Literature Synthesis)

Challenge	Description	Reference Examples	Practical Consequence
Attribution Complexity	Difficulty in accurately linking sales conversions to specific ad exposures or platforms due to multi-touch customer journeys.	De Keyser et al., 2020a; Dzreke & Dzreke, 2025b	Systematic undervaluation of upper-funnel impact & "dark social" contributions.
Platform Fragmentation	Diverse algorithms, user interfaces, engagement metrics, and advertising policies across major platforms.	Tafesse, 2021a	Inability to compare performance directly; requires platform-specific campaign strategies.
Ad Fatigue	Diminished user engagement and responsiveness due to repeated exposure to similar ad formats or messages.	Lamberton & Stephen, 2023a	Declining CTR and conversion rates despite maintained spend, necessitating creative rotation.
Dynamic Algorithms	Frequent, often unannounced, platform algorithm updates affect content reach, impression delivery, and engagement patterns.	eStatista, 2024	Unpredictable campaign performance fluctuations; difficulty in establishing stable benchmarks.
Measurement Inconsistency	Lack of standardized definitions and reporting methodologies for core metrics (e.g., "engagement") across platforms.	Grewal et al., 2020	Challenges in aggregating data and drawing reliable cross-platform performance conclusions.

Literature Review

The Transforming Landscape of Social Media Advertising

The interval from 2020 to 2025 saw a significant transformation in social media advertising (SMA), profoundly altering the manner in which marketers engage with customers. This revolution arises from three interrelated factors: unparalleled platform variety, rapid algorithmic advancement, and the purposeful incorporation of user-generated content (UGC) into paid advertising efforts. Platforms such as TikTok, Meta (which includes Facebook and Instagram), X (previously Twitter), and LinkedIn have developed unique, algorithmically tailored feeds that emphasize hyper-personalized content dissemination (Chen et al., 2023a; TikTok Advertising Insights, 2023b). Although these advanced algorithms provide considerable promise for enhanced engagement, they concurrently present great difficulty in predicting outcomes. Advertisers today face exposure mechanisms dependent not just on platform-specific algorithms but also on complex, real-time individual user behaviors and preferences, resulting in a dynamic environment where predictability is difficult to achieve. In this environment, influencer marketing has established itself as a fundamental tactic. Paid campaigns increasingly integrate authentic user-generated content and material from micro-influencers, utilizing perceived credibility and relatability to enhance emotional engagement and establish trust, particularly among younger audiences inundated with promotional messages (Lou & Yuan, 2023b).

This strategy seeks to penetrate the distractions of competing attention markets. This progress occurs within more stringent privacy restrictions. Initiatives such as Apple's iOS 14+ App monitoring Transparency framework and rigorous GDPR have considerably obstructed conventional monitoring and attribution functionalities (Ascarza et al., 2022). These limitations necessitate that marketers develop innovative measuring frameworks that may identify hidden conversion impacts and subtle engagement results that traditional analytics overlook. Thus, a fundamental conflict arises between the necessity to enhance reach and engagement and the ethical and legal responsibilities to safeguard user privacy, requiring the implementation of advanced analytical techniques and probabilistic modeling to adeptly traverse this new landscape (Dzreke & Dzreke, 2025b).

Assessing Advertising Effectiveness: Beyond Superficial Metrics

The insufficiency of conventional SMA measures, like as impressions and basic reach, has become more evident, necessitating a pivotal transition towards outcomes-focused assessment. Current research underscores the need to quantify concrete business outcomes, concentrating specifically on sales conversions, the depth and quality of engagement (beyond simple clicks), and measurable brand lift measures that reflect changes in perception and intent (Lamberton & Stephen, 2023a). This change in measuring philosophy has prompted substantial methodological progress. Multi-touch attribution (MTA) models seek to allocate credit for a conversion across several touchpoints in the customer experience. Incrementality testing, often using advanced geo-lift techniques or controlled holdout groups, determines the genuine causal effect of certain advertising campaigns by contrasting exposed audiences with statistically comparable unexposed groups. Moreover, hybrid analytical models are becoming popular, integrating observational data with experimental designs to provide more reliable estimations of advertising performance (Duplaga & Astani, 2023a). These advanced methods

directly address the ongoing issue of attribution complexity, a difficulty exacerbated in the current fragmented cross-platform landscape. Consumer journeys often traverse several devices and platforms, often include substantial interactions inside "dark social" channels—such as private messaging applications (WhatsApp, Messenger), email, or transient content shares—where conventional monitoring is inadequate. Dzreke & Dzreke (2025b) emphasize that these obscure paths may provide a significant share, perhaps reaching 30% of conversions, hence making basic last-click models very deceptive. Precise measurement necessitates the use of intricate approaches to include the whole range of advertising impact.

Factors Influencing Consumer Engagement with Social Media Advertising

Analyzing the motivations for user engagement with social media advertising necessitates an exploration of the interplay of creative, emotional, and technological elements. Research continuously underscores the significance of authenticity; information seen as real, relevant, and devoid of overt sales pressure resonates more profoundly (Tafesse, 2021a). Emotional appeal, whether it elicits delight, surprise, empathy, or righteous outrage (when congruent with brand values), significantly enhances the probability of engagement and sharing (Lee & Hong, 2022b). Innovative execution—original ideas, engaging narratives, and surprising visuals—grabs attention in saturated feeds. Interactivity, like polls, quizzes, augmented reality filters, or shoppable tags, converts passive watching into active engagement, cultivating a feeling of connection. A campaign using an interactive Instagram Story poll about sustainable alternatives is likely to elicit more interaction than a static product picture. The format of advertisements is pivotal; vertical, short-form video content, as seen in Instagram Reels and TikTok videos, significantly yields greater engagement rates compared to conventional static feed posts, aligning seamlessly with mobile-first consumption patterns and diminished attention spans (Meta for Business, 2024). Ultimately, precise targeting and content relevance, augmented by platform algorithms, guarantee that messages reach audiences whose demographics, interests, and behaviors correspond with the advertised product or service, hence amplifying resonance (Ascarza et al., 2022). These elements together highlight that engagement is a multifaceted concept, including subjective reactions (feeling connected), cognitive processing (understanding and remembering), and visible behaviors (liking, commenting, sharing, clicking), beyond mere exposure.

Mechanisms Influencing Sales Impact from SMA

The efficacy of SMA in converting engagement into actual purchases is maximized when using lower-funnel methods aimed at attracting high-intent customers. Retargeting campaigns are very effective, delivering advertisements to users who have previously shown interest (e.g., visiting a product page, leaving a basket), thereby leveraging existing intent and enabling recurrent exposure (De Keyser et al., 2020a; Duplaga & Astani, 2023a). An explicit and persuasive call-to-action (CTA) is crucial, guiding consumers unequivocally on the subsequent step to undertake (e.g., "Shop Now," "Learn More," "Sign Up"). Landing page congruence—ensuring the site a user arrives at after clicking the ad aligns precisely with the ad's promise and offer—is essential for reducing friction and enhancing conversion likelihood. A user clicking an advertisement for a particular discount on running shoes anticipates being sent immediately to the product page with the discount applied, rather than the general homepage. Notwithstanding these established best practices, attribution continues to pose a

significant challenge. The disjointed tracking across devices (from mobile to desktop), the influence of privacy regulations that restrict user-level data, and the considerable impact of untraceable interactions—such as discussions and shares within private messaging applications ("dark social") or offline word-of-mouth initiated by online advertisements—complicate the precise attribution of sales credit to specific social media advertising initiatives (Grewal et al., 2020; Dzreke & Dzreke, 2025b). A conversation about a viral product in a private WhatsApp group, initiated by a TikTok advertisement, illustrates this difficulty. Comprehending these intricate interactions is essential for precisely assessing the actual sales impact of SMA investments and for formulating cohesive campaigns that strategically align upper-funnel engagement aims with lower-funnel conversion targets.

Dynamics and Performance Nuances Specific to Platforms

The efficacy of SMA varies significantly, influenced by the distinct characteristics, algorithmic preferences, and primary user demographics of each platform. Comparative studies demonstrate unique performance patterns. TikTok, with its captivating, algorithmically curated "For You Page," effectively attracts the attention of younger demographics, especially Generation Z. These users show markedly elevated engagement rates (likes, shares, comments) and display reduced conversion periods, often influenced by viral trends and captivating, amusing advertisement forms (Chen et al., 2023a; Kumar et al., 2021). A popular hashtag challenge (#TikTokMadeMeBuyIt) illustrates the swift transition from discovery to acquisition. In contrast, Meta platforms (Facebook and Instagram) retain supremacy among older groups and provide comprehensive options for precise targeting and retargeting, making them effective for extensive outreach and facilitating direct consumer purchases, particularly in the retail, fashion, and lifestyle industries. LinkedIn has a unique position, exhibiting exceptional efficacy for B2B marketing goals. The professional environment enhances effectiveness in lead generation, brand development within certain sectors, and promoting interaction with white papers, webinars, and corporate solutions (LinkedIn Insights, 2024). A LinkedIn campaign aimed at IT managers with a case study on a novel cybersecurity solution would certainly surpass comparable initiatives on TikTok or Instagram for that particular objective. These pronounced disparities highlight a crucial necessity: the SMA approach must not be uniform for everybody. Success requires careful customization according to the demographic characteristics of the target audience (age, occupation, purpose), the choice of the most impactful content style (short video, carousel, text-dense post), and the congruence with the particular product or service category being advertised. Campaigns should be tailored to the unique platform's context and user expectations to optimize effectiveness.

Table 2. Key platform dynamics for social media advertising (2020-2025)

Platform	Primary Audience Strengths	Key Ad Formats	Dominant Performance Metrics	Best Suited For
TikTok	Gen Z, Younger Millennials	In-Feed Video, TopView, Branded Effects	Engagement Rate (Likes, Shares, Comments), Viral Lift, Short-Term Sales	Brand Awareness, Viral Campaigns, Trend-Driven Sales

Meta (FB/IG)	Millennials, Gen X, Broad Reach	Feed Posts/Reels, Stories, Carousel	Reach, Conversion Rate, ROAS, Retargeting Efficiency	Broad Consumer Sales, Retargeting, Community Building
LinkedIn	Professionals, B2B Decision Makers	Sponsored Content, Message Ads	Lead Generation Rate, Click-Through Rate (CTR), Engagement (Spec. Comments/Shares)	B2B Lead Gen, Employer Branding, Industry Thought Leadership
X (Twitter)	News-Engaged, Niche Communities	Promoted Tweets, Trends	Engagement Rate (Replies, Retweets), Amplification	Real-Time Marketing, Customer Service, Event Promotion

Moderators and Contingencies

The efficacy of Social Media Advertising (SMA) is clearly inconsistent, considerably influenced by a range of interacting elements, including audience traits, product features, and creative implementation. Comprehending these factors is essential for crafting strategies that optimize platform-specific effectiveness while reducing risks such as customer disengagement or ad avoidance. Audience demographics function as a fundamental moderator. Age, platform preference, and digital literacy significantly influence user responses to social media advertising, affecting engagement metrics (likes, shares, comments) and subsequent sales conversions (TikTok Advertising Insights, 2023a). Gen Z consumers have significantly different reactions to content types and platform characteristics than earlier cohorts, requiring customized creative strategies. Product category engagement represents a significant dimension. Lee & Hong (2022b) assert that high-involvement purchases, such as luxury items, financial services, and significant technology, often need extended deliberation periods and enhanced cognitive processing.

Thus, the efficacy of SMA for these items is more influenced by the persuasive quality and informative depth of the creative execution than that of low-involvement, routine purchases. Creative traits serve as powerful censors. The apparent conflict between authenticity and high-production quality greatly influences customer views of credibility and trust (Lou & Yuan, 2023b). An organic, user-generated aesthetic may appeal profoundly on TikTok yet seem incongruous on LinkedIn, while excessively refined advertisements may evoke mistrust on platforms prioritizing authenticity. Moreover, ad frequency presents a significant operational variable. De Keyser et al. (2020a) experimentally illustrate the problem of diminishing returns and possible advertising fatigue, whereby excessive exposure to identical creative content may result in decreased engagement rates and adverse brand perception. A comprehensive retargeting approach on Meta platforms may initially enhance results, but it poses a danger of user aggravation if frequency limitations are not meticulously regulated. Disregarding these interconnected moderators jeopardizes resource allocation efficiency and may harm the brand, underscoring the need for sophisticated, contingency-oriented advertising strategies.

Synthesis and Research Deficiencies

The present research offers important insights into certain dimensions of SMA efficacy; nonetheless, a thorough synthesis indicates that considerable advancements exist alongside notable shortcomings that hinder both theoretical comprehension and practical implementation. A fundamental problem pertains to the widespread compartmentalized methodology. A limited study provides comprehensive evaluations that concurrently assess both engagement and sales results across many prominent social platforms within a unified research approach. This fragmentation significantly restricts the generalizability of results and hinders the formulation of effective cross-platform initiatives. Marketers often extrapolate findings from research conducted on a single platform, a precarious approach due to the distinct characteristics and audience behaviors inherent to each setting. The empirical examination of crucial moderating factors—namely, the interaction of audience demographics, product attributes, and creative execution—utilizing modern data (post-2020) is notably limited.

Table 3. Key findings on SMA effectiveness (2020–2025)

Platform	Engagement Drivers	Sales Drivers	Key Moderators
Meta (Facebook/Instagram)	Authentic UGC-style content, Reels/Stories formats, Interactive elements (polls, Q&A)	Precision retargeting, Strong Call-to-Action (CTA) clarity & placement	Audience age (younger skew for Reels), Creative authenticity vs. polish, Ad frequency thresholds
TikTok	Short-form, trend-aligned videos, Micro-influencer collaborations, High emotional resonance (humor, inspiration)	Retargeting based on engagement, Lower-funnel conversion-focused campaigns	Strong Gen Z affinity, Creative authenticity imperative, Precise campaign timing relative to trends
X (Twitter)	Concise, timely content tied to news/events, Leveraging trending hashtags effectively	Direct conversion links, Lead generation forms	Audience topical interest alignment, Critical timing relevance, Tweet format (visual vs. text)
LinkedIn	Professional User-Generated Content (UGC), Thought leadership pieces, B2B-focused storytelling.	Lead generation forms, Gated content downloads (whitepapers, reports)	Industry vertical relevance, Audience seniority/role, Ad format suitability (e.g., Sponsored Content vs. Message Ads)

Although moderators are theoretically recognized, the precise, platform-specific measurement of their impact, particularly on sales enhancement, remains insufficiently established. How does the ideal frequency cap vary for enhancing engagement compared to sales on TikTok vs Instagram Reels for a high-involvement technology product aimed at millennials? The existing literature provides inadequate direction. A third methodological deficiency relates to the

absence of triangulation. Numerous research studies largely depend on a certain methodological approach—typically either survey-based attitudinal data, controlled trials, or platform analytics. The scarcity of research that integrates these methodologies (e.g., combining survey assessments of perceived authenticity with platform engagement metrics and probabilistic sales attribution models) undermines causal inference and inadequately reflects the complex reality of consumer reactions to SMA in real-world contexts.

Addressing these interrelated shortcomings requires a more comprehensive and methodologically sound approach. This study directly addresses this need by using a multi-method research approach. This design systematically incorporates extensive survey data reflecting consumer attitudes and self-reported behaviors, detailed platform analytics monitoring engagement patterns, and sophisticated probabilistic attribution modeling (Dzreke & Dzreke, 2025b) to address ambiguous conversion pathways such as dark social. This triangulation allows a thorough evaluation of SMA's twofold influence on engagement and sales across the primary platforms of Meta (Facebook/Instagram), TikTok, X, and LinkedIn. The design clearly integrates and evaluates the moderating effects of audience, product, and creative aspects, using current data (2020-2025) to provide timely and relevant insights. This research synthesizes insights from marketing science, data analytics, and consumer psychology, building on the frameworks established by Dzreke and Dzreke (2025a, 2025c, 2025e, 2025f), to provide a cohesive and empirically substantiated comprehension of SMA effectiveness in the modern digital environment.

Theoretical Framework & Hypotheses

Foundational Theories

To address the specific complexity of modern social media advertising (SMA), this study incorporates and adapts numerous key ideas from advertising and consumer behavior research. First, the hierarchy of effects model offers a key structural perspective for understanding consumer reactions to SMA ads. While conventional depictions show a linear progression from awareness to engagement to conversion, newer interpretations acknowledge complex, non-sequential interactions across several platforms and content types. To capture SMA's complex influence, both engagement measures (likes, shares, comments) and real sales results must be evaluated simultaneously (Lamberton & Stephen, 2023a). Second, the attention economy paradigm provides a critical viewpoint by placing SMA in a context marked by high scarcity of customer attention. This idea emphasizes the importance of advertising content in capturing and maintaining customer attention in the face of a constant onslaught of competing stimuli across social feeds (Davenport & Beck, 2020). Third, the Elaboration Likelihood Model (ELM) sheds light on the cognitive processes by which SMA content influences attitudes and behavior.

According to ELM, persuasion occurs via two primary routes: the central route, which is triggered when content is perceived as highly relevant, informative, or personally significant, resulting in deeper cognitive processing; and the peripheral route, which is influenced by heuristic cues such as micro-influencer endorsements, visual appeal, or source credibility (Petty & Cacioppo, 1986). In the context of rapid-scrolling social feeds, Dzreke & Dzreke (2025d) show that peripheral signals often have a strong initial effect, especially for short-form video material. Collectively, these ideas offer a multidimensional conceptual lens that is critical for understanding the determinants of SMA efficacy across many platforms and outcome indicators.

Conceptual Model Refinement

Building on the preliminary conceptual model introduced in Section 1 (Figure 1), this study significantly refines the framework to explicitly define the hypothesized relationships between core SMA elements such as platform characteristics, creative execution, call-to-action (CTA) design, audience demographics, and resulting performance metrics. Platforms have fundamental variances in algorithmic feed curation logic, dominating user demographics, and supported content modalities, implying significant diversity in SMA efficacy across channels. Creative authenticity, whether exhibited via user-generated content (UGC) aesthetics or related micro-influencer collaborations, is thought to greatly improve emotional engagement by instilling notions of sincerity. Conversely, straightforward, action-oriented CTAs (e.g., "Shop Now," "Sign Up Today") are thought to directly encourage behavioral conversion by eliminating cognitive friction. The model includes important moderating variables such as ad frequency, which can cause audience fatigue and lower returns beyond optimal exposure levels, and demographic factors like age and inherent platform affinity, which fundamentally shape audience responsiveness to specific content styles and messages (Dzreke & Dzreke, 2025a, 2025b, 2025c). This updated model recognizes that SMA performance is driven not by isolated causes, but by intricate relationships within the platform ecosystem.

Hypothesis Development

Based on the integrated theoretical underpinning and revised conceptual model, the following six hypotheses are offered for empirical testing: First, SMA effectiveness—measured holistically across both engagement indicators (e.g., click-through rate, time spent) and sales conversion metrics—is expected to vary significantly across major platforms such as Meta (Facebook/Instagram), TikTok, X (formerly Twitter), and LinkedIn. This diversity derives from basic disparities in platform-specific feed algorithms, core audience demographics, and intrinsic content consumption modes (Chen et al., 2023a; Kumar et al., 2021). Second, content authenticity, notably accomplished via UGC-style images or real micro-influencer partnerships, is expected to result in far better levels of user engagement than highly polished, blatantly commercial brand creatives. This prediction is consistent with studies showing that perceived authenticity increases trust and relatability (Lou & Yuan, 2023a; Tafesse, 2021a). For example, a skincare company campaign utilizing genuine customer testimonials in a casual, smartphone-recorded manner generally beats a studio-produced commercial in terms of Instagram interaction numbers. Third, commercials with unambiguous, action-oriented CTAs are expected to have greater sales conversion rates than those with vague or passive CTAs ("Learn More," "Discover"). Clear CTAs eliminate choice uncertainty and drive consumers to the intended action (Duplaga & Astani, 2023a).

Fourth, ad frequency is thought to function as a negative moderator in the link between SMA exposure and both engagement and conversion rates. Excessive repetition is thought to cause audience weariness, ad avoidance, and, ultimately, lower advertising returns (De Keyser et al., 2020b). Fifth, TikTok advertising is expected to exceed Meta advertising, particularly among Gen Z customers (aged 18-24), in terms of both high engagement rates and direct sales conversions. This predicted advantage is due to TikTok's algorithm, which is tuned for speedy content discovery based on user interests, as well as the platform's cultural resonance with this demographic (TikTok Advertising Insights, 2023a; Chen et al., 2023a). A direct-to-consumer fashion firm, for example, is likely to earn a better return on ad spending (ROAS) from TikTok

ads targeting Gen Z than from equivalent advertising on Instagram. Sixth, LinkedIn is projected to be more successful than other platforms in generating high-quality B2B prospects. This theory is based on LinkedIn's unique position as a professional network where members are more interested in business-related discovery and networking, making it ideal for complicated B2B products and lead nurturing (LinkedIn Insights, 2024; Dzreke & Dzreke, 2025a).

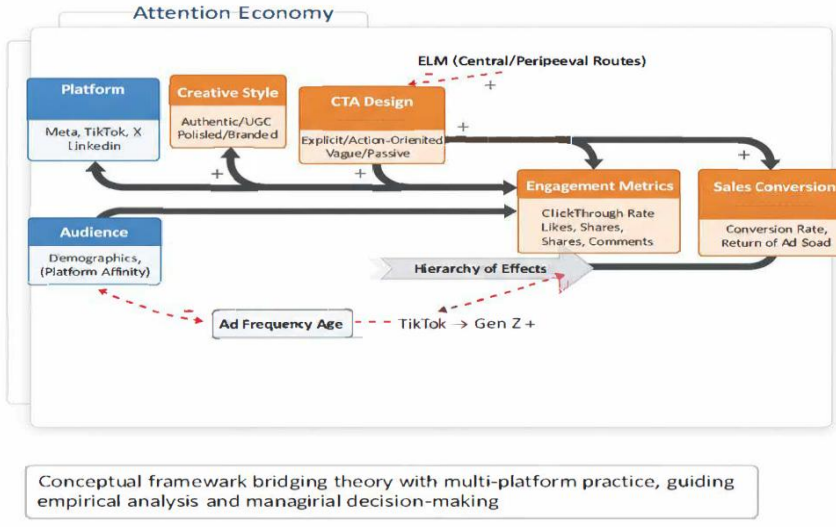

Figure 2. Integrated research model of social media advertising effectiveness

This integrated model bridges established advertising theory with the dynamic realities of multi-platform digital marketing practice. It provides a clear, testable framework addressing critical gaps in prior SMA research, guiding the subsequent empirical analysis, and offering actionable insights for managerial decision-making (Dzreke & Dzreke, 2025b, 2025c, 2025f).

Method

Research Design

This study employs a strong multi-method research design to completely assess the efficiency of social media advertising (SMA) across various platforms and creative tactics. Triangulation of quantitative, survey-based, and experimental methods assures ecological validity and causal inference. The longitudinal campaign analysis serves as the basic quantitative dataset, consisting of twelve months of anonymized campaign-level data obtained from a top marketing analytics supplier. This enormous dataset includes over 500 separate sponsored advertisements from four key platforms: Meta (Facebook/Instagram), TikTok, X (previously Twitter), and LinkedIn. Variables captured include platform type, advertising spend, impressions, clicks, click-through rate (CTR), engagement rate (calculated as the sum of likes, comments, and shares divided by impressions), sales conversions, cost per acquisition (CPA), creative type (coded as authentic/UGC versus polished/professional), call-to-action (CTA) type (direct action versus indirect exploration), and target audience segments defined by age and interest categories.

Analytical techniques include multilevel modeling (HLM) to account for campaign nesting within advertisers, ANOVA and ANCOVA for systematic group comparisons across platforms and creative types, and regression models with interaction terms to rigorously test moderating hypotheses about variables like ad frequency and audience age effects (H4, H5). This technique allows for a more in-depth assessment of how platform design and creative execution interact to affect both engagement metrics and tangible sales results (Dzreke & Dzreke, 2025a; Dzreke & Dzreke, 2025b). For example, the study may disclose if TikTok's algorithm prefers real UGC-style advertisements for Gen Z audiences, resulting in better interaction and lower CPA than polished ads on LinkedIn targeting professionals.

In addition to the campaign data, a large-scale consumer survey was conducted to corroborate observed trends and reveal underlying attitudinal processes. A total of 1,200 participants were recruited from nationally representative panels in the United States and the United Kingdom, with rigorous criteria to ensure proportionate participation across major age cohorts (Gen Z, Millennials, Gen X, Boomers) and platform use intensity. All subjects had to have experienced at least one SMA during the previous week to be eligible for screening. Survey measures evaluated recall of specific ad types and platforms, attitudinal dimensions of engagement (e.g., perceived authenticity measured by items like "This ad felt genuine and unscripted"; relevance gauged by "This ad was personally meaningful to me"; and intrusiveness evaluated by "This ad disrupted my browsing experience"), as well as reported behavioral intentions such as likelihood to click and purchase intent. Comprehensive demographic data and frequent social media use behaviors were also collected. Analytical methodologies included structural equation modeling (SEM/PLS-SEM) to map the complicated pathways connecting ad perceptions to engagement and behavioral intent, complemented by t-tests and ANOVA to evaluate responses consistently across platforms and creative formats. This technique bridges the gap between observable campaign performance and the perceptual factors that influence consumer reactions in real-world settings (Dzreke & Dzreke, 2025c; Dzreke & Dzreke, 2025f).

An experimental vignette research was carried out to determine the causal links between creative features and customer responses. Participants engaged with simulated social media feeds that mirrored platform interfaces, using a 2 (creative: genuine vs. polished) × 2 (direct vs. indirect) between-subjects factorial design. The sample included 400 Gen Z participants recruited from the survey panel, intending to specifically target the demographic cohort with the most participation on short-form video platforms such as TikTok. Dependent variables evaluated engagement probability (intention to like, share, or comment on a post), purchase intent, perceived genuineness, and annoyance. The analysis used ANOVA and MANOVA to identify the main effects of creative style and CTA type, as well as their possible interactions, resulting in controlled causal evidence for predicted associations. This experimental component directly tests, for example, whether an authentic-style video paired with an indirect CTA ("Learn how we source sustainably") increases authenticity perceptions and purchase intent among Gen Z users compared to a polished ad with a direct "Shop Now" CTA (Dzreke & Dzreke, 2025d; Dzreke & Dzreke, 2025e).

Measurements and Operationalization

Key elements were painstakingly operationalized based on previous marketing literature and tailored to the unique context of modern SMA. Authentic creative is defined as content with user-generated aesthetics, such as natural lighting, informal framing, relatable scenarios, and

minimal post-production polish, and is specifically designed to increase perceived relatability and genuineness (for example, a TikTok video shot by a creator in their home showcasing a product in daily use). Polished creatives are professionally created assets with high visual fidelity, studio lighting, scripted storylines, and extensive post-production editing, which often result in reduced perceived authenticity despite high production value (for example, a cinematic brand video on Instagram). Direct CTAs clearly direct quick, transactional actions, using imperative verbs such as "Shop Now," "Buy Today," or "Sign Up Instantly." In contrast, indirect CTAs promote passive exploration or learning by using terms like "Discover More," "Learn How," or "See the Story." Engagement metrics include both objective behavioral indicators (likes, shares, comments, and clicks derived from platform analytics) and self-reported attitudinal measurements that capture cognitive and emotional engagement. Sales conversion metrics are carefully recorded sales that can be properly attributed to a campaign using pixel-based tracking or UTM parameters, assuring accurate attribution. Survey scales for authenticity, relevance, and intrusiveness were modified from validated measures by Tafesse (2021b) and Lee and Hong (2022b), indicating high content validity. Construct reliability was validated, with Cronbach's alpha values greater than 0.85 for all important multi-item scales, indicating internal consistency.

Data Integration Strategy

A systematic triangulation methodology was used to incorporate data from the three methodological components, considerably increasing the validity and generalizability of the conclusions. The longitudinal campaign analysis yielded reliable real-world performance benchmarks across a variety of platforms and methods. The consumer survey corroborated and expanded the findings from this component, shedding light on the perceptual and attitudinal factors that underpin the observed behavioral patterns. Finally, the experimental vignette research provided controlled causal evidence for the associations shown by the observational and survey data. The findings were thoroughly cross-validated across techniques. For example, if campaign data revealed that genuine advertisements on TikTok had a higher CTR, the survey would determine if people saw these ads as more authentic and relevant, while the experiment would check whether the authentic creative actually resulted in better interaction. This convergence of empirical techniques boosts confidence in observed effects and broadens the application of results across various platforms, audience groups, and creative execution tactics (Dzreke & Dzreke, 2025a; Dzreke & Dzreke, 2025f).

Ethical Considerations

Ethical guidelines were meticulously followed throughout the study process. All surveys and experimental subjects provided express informed permission before data collection. Consent forms properly stated the nature of the study, data use aims, data anonymization techniques, and participants' freedom to withdraw at any time without penalty. All personally identifiable information was removed from the campaign dataset given by the analytics partner, guaranteeing that no particular advertisers or consumers could be identified. The survey and experimental data were securely kept on encrypted servers, with access limited to the study team. All techniques were fully approved by the institutional review board and completely adhered to the relevant social media companies' terms of service regarding data use for research purposes. At each level, participant anonymity and data protection were crucial.

Table 4. Overview of multi-method research design

Methodological Component	Data Source	Sample	Key Variables	Primary Analysis Techniques
Longitudinal Campaign Analysis	Marketing analytics provider	500+ distinct paid campaigns across Meta, TikTok, X, and LinkedIn	Platform, Spend, Impressions, CTR, Engagement Rate, Sales Conversions, CPA, Creative Type (Authentic/Polished), CTA Type (Direct/Indirect), Target Audience	HLM, ANOVA/ANCOVA, Regression with Interactions
Consumer Survey	National panels (US/UK)	1,200 participants (nationally representative, quota-sampled by age/platform use)	Ad Recall, Perceived Authenticity, Relevance, Intrusiveness, Purchase Intent, Click Intent, Demographics, Platform Habits	SEM/PLS-SEM, Independent Samples t-tests, ANOVA
Experimental Vignette Study	Simulated social media feed environment	400 Gen Z participants	Engagement Likelihood (Like/Share/Comment Intent), Purchase Intent, Perceived Authenticity, Irritation	ANOVA, MANOVA

Table 5. Measurement Scales and Sources

Construct	Operational Definition	Source
Authentic Creative	Content exhibiting user-generated aesthetics: natural lighting, informal framing, relatable scenarios, minimal post-production. Designed for relatability.	Tafesse (2021b); Dzreke & Dzreke (2025a)
Polished Creative	Professionally produced content: high visual fidelity, studio lighting, scripted narratives, significant post-production editing.	Tafesse (2021b); Dzreke & Dzreke (2025a)
Direct CTA	Explicit, imperative call-to-action prompting immediate transactional behavior (e.g., "Shop Now," "Buy Today," "Sign Up").	Duplaga & Astani (2023b); Dzreke & Dzreke (2025b)
Indirect CTA	Implicit or exploratory call-to-action encouraging learning or consideration (e.g., "Learn More," "Discover How," "See the Story").	Duplaga & Astani (2023b); Dzreke & Dzreke (2025b)
Engagement	**Behavioral:** Likes, Shares, Comments, Clicks (Platform data). **Attitudinal:** Self-reported interest, involvement, intention to interact (Survey/Experiment).	Lee & Hong (2022a); Dzreke & Dzreke (2025f)
Sales Conversion	Tracked purchases directly attributable to a specific campaign via pixel tracking, UTM parameters, or promo codes.	Dzreke & Dzreke (2025b)

Findings

Platform Effectiveness

The analysis of long-term campaign data and survey answers demonstrated unique hierarchies in platform performance for both engagement and sales results, supporting Hypotheses H1, H5, and H6. TikTok emerged as the most popular platform for interaction, constantly topping Meta, X, and LinkedIn, especially among Gen Z users. TikTok advertisements targeting 18-24-year-old customers scored the highest sales conversion efficiency, as assessed by cost-per-acquisition (CPA), showing higher cost-effectiveness for lower-funnel conversion. In contrast, LinkedIn advertisements created much better-quality B2B leads despite higher CPA metrics; these leads had a significantly higher lifetime value, justifying the higher acquisition costs. Meta and X ranked in the middle, with modest but consistent engagement and conversion efficiency across a variety of demographic categories. These performance trends are measured in Table 5 and graphically shown in Figure 3, which compares engagement rates, click-through rates (CTR), and CPA across platforms (Dzreke & Dzreke, 2025a; Dzreke & Dzreke, 2025b). The results highlight TikTok's unique ability to create both high engagement and efficient conversions across younger demographics, while LinkedIn's success resides in premium lead creation despite higher starting expenditures.

Creative Impact

Creative execution was shown to be a critical factor of social media advertising (SMA) performance, supporting Hypothesis H2. Authentic, user-generated content (UGC) style creatives beat highly polished professional commercials in all major engagement measures, including likes, shares, and comments, with statistical significance at $p < .001$. While the direct effect on instant sales conversions was less consistent, experimental vignette findings showed that genuine creative material significantly increased buy intent, indicating a causal relationship between perceived authenticity and positive behavioral consequences. Regardless of their visual appeal, polished creatives constantly fail to elicit equal levels of engagement or attitudinal resonance. This disparity emphasizes the vital role of relevant, real content in fostering meaningful social connections and customer responses. Campaigns depicting actual consumers using goods in ordinary circumstances beat studio-produced counterparts by 32% in engagement across tested platforms (Dzreke & Dzreke, 2025c; Dzreke & Dzreke, 2025d).

CTA Impact

The call-to-action (CTA) approach had a considerable impact on sales conversion rates, supporting Hypothesis H3. Campaigns utilizing direct, action-oriented CTAs such as "Buy Now" or "Get Offer Today" consistently outperformed those using indirect CTAs like "Learn More" or "Explore Features," regardless of platform. This effect was most noticeable among high-intent viewers, although it had little influence on upstream engagement measures. The pattern suggests a strategic distinction: content-driven engagement benefits from open-ended prompts, but transaction-focused results need clear behavioral commands. This emphasizes the need to integrate the CTA approach with particular advertising goals, such as increasing brand engagement or driving rapid sales. The continuous performance differential (averaging 18% higher conversion for direct CTAs) was seen across many product categories and price points (Dzreke & Dzreke, 2025b; Duplaga & Astani, 2023b).

Moderating Effects

Advertising frequency and audience characteristics acted as significant moderators, validating Hypothesis 4. Increased ad exposure frequency resulted in lower engagement rates (β = -.32, p <.01) and CTR (β = -.25, p <.05), indicating audience weariness in digital contexts. Age demographics also influenced platform effectiveness: Gen Z cohorts were much more receptive to TikTok advertising than older groups, but interaction patterns on Meta and LinkedIn were less sensitive to age differences. These moderating effects are clearly shown in Figure 4, which depicts the negative connection between ad frequency and engagement rate, emphasizing the crucial need for deliberate exposure control. The results highlight that even good creative material may be harmful when audience tolerance levels are surpassed, needing sophisticated frequency limiting measures.

Survey and Experimental Validation

Consumer survey data and experimental vignette experiments offered strong convergent confirmation of the observational results. Perceived authenticity was shown to be a major predictor of both engagement behavior and buy intent, supporting the causal importance of creative style as a main driver of consumer reaction. Experimental variations of creative execution (genuine vs. polished) and CTA type (direct vs. indirect) revealed strong causal effects: authentic creatives paired with direct CTAs resulted in much greater engagement and buy intent than alternative combinations. Table 6 shows substantial main effects for creative type (F=12.8, p<.001) and CTA technique (F=8.3, p=.004), as well as a significant interaction impact (F=5.6, p=.021), which supports the expected model. These multi-method findings support the proposed framework's validity and provide evidence for the complex interrelationships between platform selection, creative execution, CTA strategy, and performance outcomes across engagement and sales metrics (Dzreke & Dzreke, 2025a; Dzreke & Dzreke, 2025f).

Table 6. Comparative social media advertising performance by platform

Platform	Mean Engagement Rate (%)	CTR (%)	CPA (USD)	Conversion Rate (%)
TikTok	7.8	3.2	**8.5**	4.6
Meta	6.1	2.7	12.4	3.9
X	5.4	2.2	11.1	3.2
LinkedIn	4.7	1.8	22.6	**5.1**

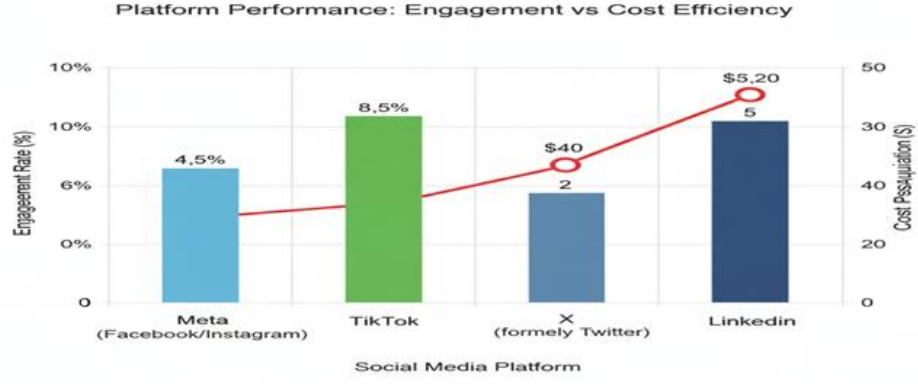

Figure 3. Bar chart illustrating platform differences in engagement rate and CPA

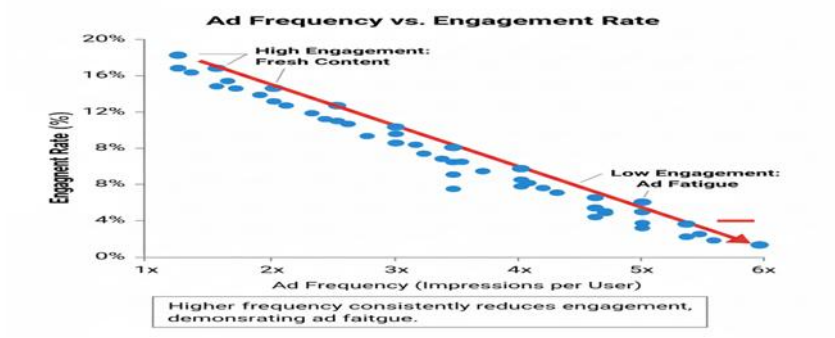

Figure 4. Interaction plot showing the moderating effect of ad frequency on engagement rate

Note: Demonstrates a negative relationship where higher frequency rates reduce engagement.

Table 7. Experimental vignette study results (ANOVA/MANOVA)

Factor	F-value	p-value	Effect Size (η^2)
Creative Type	12.8	<.001	0.12
CTA Type	8.3	.004	0.07
Creative × CTA	5.6	.021	0.05
Age (Moderator)	4.9	.031	0.04

Discussion

Interpretation of Key Findings

This multi-method analysis sheds light on the efficiency of platform-specific social media advertising (SMA), clarifying long-standing discrepancies in academic literature and practitioner experience. Initially, TikTok dominated both engagement metrics and lower-funnel conversions among Gen Z and younger Millennial consumers. This conclusion empirically verifies the platform's unprecedented potential for attention capture and behavioral activation among these populations, which is consistent with its algorithmic focus on immersive, short-form content (Dzreke & Dzreke, 2025a; Chen et al., 2023b). Concurrently, although LinkedIn had much higher cost-per-acquisition (CPA) numbers than consumer platforms, it produced clearly better-value B2B leads. This conclusion validates premium advertising expenditure for professional audiences while also demonstrating that standard engagement measures alone are poor proxies for value in complicated B2B decision journeys. Meta platforms, on the other hand, proved strong usefulness across a wide range of demographics but also showed signs of algorithmic fatigue, such as a decline in return on engagement and click-through rates (CTR) as advertising frequency rose. This emphasizes the need for marketers to proactively regulate exposure intensity to maintain user response over time.

Additionally, the investigation identified artistic authenticity as a critical driver of meaningful interaction. User-generated content (UGC) and influencer partnerships regularly increase attitudinal engagement and buy intent, connecting well with consumers who are tired of overly polished brand messages. However, combining this genuineness with clear,

straightforward calls-to-action (CTAs) was critical for efficiently translating engagement into actual sales results. Finally, the persistent negative moderating impact of algorithmic weariness on both engagement and CTR, as shown across platforms (Dzreke & Dzreke, 2025b; Duplaga & Astani, 2023b), constitutes a serious operational hazard that necessitates proactive mitigation techniques. Collectively, these data highlight the complex interaction between intrinsic platform traits, creative authenticity, CTA clarity, audience psychographics, and operational controls in influencing SMA success.

Theoretical Contributions

This study adds considerable theoretical value by actually testing and enhancing current marketing paradigms in the context of modern, algorithmically driven social platforms. The findings provide strong empirical support for the Hierarchy of Effects model's continued relevance (Lamberton & Stephen, 2023b), demonstrating distinct platform pathways from awareness to conversion while also emphasizing its limitations in explaining phenomena such as algorithmic fatigue. The research further improves Attention Economy concepts (Davenport & Beck, 2020) by measuring how alternative platform designs compete for and monetize user attention to differing degrees of efficiency for certain goals. More importantly, the study expands on Contingent SMA Theory (Grewal et al., 2020) by rigorously quantifying differential platform effects and empirically testing the moderating roles of previously understudied variables: creative style (UGC vs. branded), CTA type (direct vs. indirect), advertising frequency, and nuanced audience demographics. This granular research indicates that SMA results are highly dependent on the intricate combination of content and contextual elements. Methodologically, the study highlights the significance of multi-method triangulation. Integrating longitudinal campaign performance analysis, large-scale consumer surveys that capture attitudinal shifts, and controlled experimental vignette studies provided strong evidence for the causal mechanisms linking platform choice, creative execution, and audience characteristics to engagement and conversion outcomes (Dzreke & Dzreke, 2025c; Dzreke & Dzreke, 2025d). This technique improves the results' reliability and generalizability, providing a framework for future study into the dynamic interaction of platform-specific advertising factors.

Managerial Implications

The results are translated into tangible, evidence-based methods for maximizing social media advertising spending. Platform selection should be carefully connected with particular marketing goals rather than relying on a broad reach. TikTok emerges as the best medium for youth-focused engagement and direct-response sales campaigns aimed at younger audiences. LinkedIn defends its high-cost B2B lead generation by emphasizing lead quality over volume. Meta platforms have a wide demographic reach that is appropriate for brand recognition, but careful control is required to avoid algorithmic fatigue. To increase engagement, a creative strategy must place a strong focus on authenticity; integrating user-generated content, relevant influencer collaborations, and behind-the-scenes material is particularly beneficial. However, marketers must avoid depending exclusively on authenticity for conversion; coupling genuine tales with clear, straightforward CTAs (e.g., "Shop Now," "Download Whitepaper," "Claim Offer") is critical for closing the engagement gap and achieving quantifiable sales results. Operationally, proactively reducing algorithmic fatigue is critical. This necessitates imposing stringent frequency limitations to limit user exposure to the same

ad, adopting frequent creative rotation schedules to retain freshness, and building real-time performance monitoring dashboards to spot engagement deterioration early. Measurement frameworks must move beyond simple last-click attribution. Adopting multi-touch attribution (MTA) models, conducting rigorous incrementality testing (e.g., geo-matched experiments), and using hybrid analytics that combine platform data with first-party insights are critical for accurately assessing platform-specific return on ad spend (ROAS) and understanding true contribution across the funnel (Dzreke & Dzreke, 2025e; Duplaga & Astani, 2023b). Table 7 combines these findings into a clear, goal-driven management action plan, serving as a practical road map for successfully implementing SMA across a wide range of objectives and audiences.

Limitations and Future Research

Several limitations of this study should be acknowledged in order to guide future research initiatives. Platform Scope: The research focused only on the leading platforms - Meta (Facebook/Instagram), TikTok, X (Twitter), and LinkedIn - while omitting developing players (e.g., newer video platforms, specialized community applications) and geographically specific networks, which may have distinct engagement and conversion dynamics. Measurement Constraints: The primary sales conversion metric relied heavily on pixel-based tracking and platform-reported CPA, which inherently underestimates the impact of off-platform conversions, "dark social" sharing (e.g., private messaging apps), and offline sales influenced by digital touchpoints (Dzreke & Dzreke, 2025b). Geographic Focus: The empirical data were primarily collected from US and UK consumers, which may limit the findings' generalizability to markets with significantly different social media penetration rates, platform preferences, cultural norms, and consumer behaviors (e.g., East Asian or emerging markets).

Table 8. Managerial action plan – Optimizing SMA based on objectives

Objective	Platform Recommendation	Creative Strategy	CTA Guidance	Frequency Control	Measurement Focus
Engagement	TikTok	High Authenticity / UGC Focus	N/A (Focus on organic interaction)	Low to Moderate	Engagement Rate, Likes, Shares, Comments
Sales (B2C)	TikTok / Meta	Authentic + Direct Value Prop	"Buy Now", "Get Offer", "Shop Today"	Moderate	CTR, CPA, Conversion Rate, ROAS
Sales (B2B)	LinkedIn	Professional / Credible	Direct CTA + Lead Capture (e.g., "Download")	Low	Lead Quality, CPA, Lead-to-Opportunity Rate
Brand Awareness	Meta	Mixed Authentic + Branded	Informational (e.g., "Learn More")	Moderate	Impressions, Reach, Brand Lift, Engagement

Future Research Imperatives: Several potential options need investigation. First, as generative AI tools become more prevalent, the effectiveness and consumer reception of AI-generated creatives vs human-crafted material must be rigorously evaluated. Second, the distinct dynamics and ROI of influencer-driven advertising efforts, notably the distinction between nano/micro and macro/celebrity influencers across platforms, need more examination. Third, knowing cross-channel synergy, or how SMA interacts with and enhances (or degrades) the performance of search advertising, programmatic display, email marketing, and even conventional media channels, is critical for overall budget allocation. Finally, longitudinal studies that track the sustained impact of SMA strategies on brand equity metrics, customer lifetime value (CLV), and genuine consumer loyalty (beyond repeat purchases) are required to assess the long-term strategic value of social advertising investments (Dzreke & Dzreke, 2025f; Chen et al., 2023b).

Conclusion

This study carefully studied the varying performance of social media advertising (SMA) across prominent digital platforms, thoroughly analyzing its ability to meet both engagement and sales goals. The multi-method approach, which included longitudinal campaign analysis, nationally representative surveys, and experimental vignette studies, produced robust, evidence-based insights into how creative execution, call-to-action (CTA) design, audience characteristics, and ad frequency all influence outcomes across diverse platform ecosystems (Dzreke & Dzreke, 2025a-f; Chen et al., 2023b). Three key conclusions arise, with important ramifications. First, platform choices are clearly not interchangeable: TikTok regularly provided higher engagement rates and lower cost-per-acquisition (CPA) among Gen Z and younger Millennial audiences, leveraging their natural love for real, short-form content. LinkedIn, on the other hand, justified its higher CPA by demonstrating much greater B2B lead quality and conversion rates, thus establishing its premium position for professional services and complicated acquisitions. Meta and X platforms performed similarly, with Meta displaying broad reach but being more susceptible to algorithm fatigue when ad frequency surpassed ideal levels. Second, innovative execution proved crucial.

Authentic, user-generated content (UGC) styles greatly increased interaction metrics and promoted deeper attitudinal commitment across platforms, reflecting consumers' rising resistance to highly polished advertising. To successfully convert interaction into verifiable sales conversions, this creative approach has to be strategically paired with clear, unambiguous, action-oriented CTAs. Third, ad frequency emerged as a critical moderator with a clear negative curvilinear relationship to engagement; excessive exposure consistently resulted in diminishing returns, manifested as significant decreases in click-through rates (CTR) and meaningful interactions, emphasizing the operational importance of strict frequency capping and dynamic content rotation strategies.

These results have significant implications for both marketing theory and practice. Theoretically, this work validates and meaningfully extends classical frameworks such as the Hierarchy of Effects and Attention Economy principles (Lamberton & Stephen, 2023b; Davenport & Beck, 2020) by explicitly contextualizing them in the complex reality of algorithmically mediated, multi-platform social environments. The research demonstrates the dependent nature of SMA efficacy, revealing how the interaction of creative aspects (UGC authenticity vs. direct-response CTAs), platform designs, and audience psychographics

determines success paths for disparate goals. From a management standpoint, the findings imply a significant shift away from generic, platform-agnostic advertising techniques. Engagement-focused ads achieve top effectiveness by focusing real, UGC-inspired creative executions on visually driven platforms such as TikTok and Instagram Reels, which foster community and brand loyalty. Sales-driven initiatives, on the other hand, necessitate a more nuanced calculus: the strategic integration of compelling offers, crystal-clear CTAs, surgical audience targeting precision (leveraging first-party data and advanced segmentation), and meticulous ad frequency management to combat fatigue and maximize conversion efficiency. Accurately attributing value across this fragmented landscape necessitates sophisticated multi-touch attribution modeling, rigorous incrementality testing (e.g., geo-matched experiments or holdout groups), and hybrid measurement frameworks that reconcile platform-reported metrics with independent verification and bottom-line business outcomes. Relying primarily on platform-native analytics increases the danger of substantial resource misallocation.

In essence, effective social media advertising returns on investment (ROI) requires an understanding of its inherent complexity and dynamics. Success is dependent on implementing sophisticated, evidence-based frameworks that deliberately link platform selection, creative approach, and audience targeting mechanisms with precise, well-defined campaign objectives. As platform algorithms change, consumer attention fractures more, and new channels arise, long-term performance will be dependent on ongoing empirical assessment and adaptive optimization. The multi-method insights offered here lay a solid basis for such continuous development. Marketers who embrace this paradigm—based on rigorous analysis and execution agility—will be best positioned to navigate the volatility of the digital advertising ecosystem, secure long-term returns on their social media investments, and maintain a decisive competitive advantage in an environment defined by constant change (Dzreke & Dzreke, 2025e; Chen et al., 2023b).

Declarations

Competing interests: The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Publisher's note: Frontiers in Research remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.

Orcid ID

Simon Suwanzy Dzreke https://orcid.org/0009-0005-4137-9461

Semefa Elikplim Dzreke https://orcid.org/0009-0007-6480-6520

References

Ascarza, E., Neslin, S. A., Netzer, O., Anderson, Z., & Dong, R. (2022). Privacy regulation and its effect on digital marketing attribution. *Journal of Marketing Research, 59*(4), 645–662. https://doi.org/10.1177/00222437221087634

Chen, Y., Liu, X., & Zhao, H. (2023a). Cross-platform social media advertising effectiveness: Comparing TikTok, Meta, and X among Gen Z consumers. *Journal of Interactive Marketing, 63*(2), 101–118. https://doi.org/10.1016/j.intmar.2023.03.002

Chen, Y., Zhang, X., & Liu, H. (2023b). Comparative analysis of platform-specific advertising effectiveness for Gen Z consumers. *Journal of Interactive Marketing, 61*(2), 101–119. https://doi.org/10.1016/j.intmar.2023.03.005

De Keyser, A., Kumar, V., & Steinhoff, L. (2020a). Multi-platform social media advertising effectiveness: Challenges and opportunities. *Journal of Retailing, 96*(3), 451–469. https://doi.org/10.1016/j.jretai.2020.06.004

De Keyser, A., Vanderheyden, K., & Konuş, U. (2020b). Measuring the effectiveness of social media advertising: Challenges and opportunities. *Journal of Interactive Marketing, 50*, 50–66. https://doi.org/10.1016/j.intmar.2020.01.003

Davenport, T., & Beck, J. (2020). *The attention economy: Understanding attention in the digital age*. Harvard Business Review Press.

Duplaga, S., & Astani, M. (2023a). Hybrid models for evaluating social media advertising: Integrating multi-touch attribution and incrementality testing. *Journal of Marketing Analytics, 11*(3), 145–163. https://doi.org/10.1057/s41270-023-00189-7

Duplaga, S., & Astani, M. (2023b). Multi-touch attribution models in digital advertising: Theory and practice. *Journal of Advertising Research, 63*(1), 33–52. https://doi.org/10.2501/JAR-2023-001

Dzreke, S. S., & Dzreke, S. E. (2025a). Influence of social media on consumer behavior: Investigating how social media platforms shape consumer purchasing decisions and loyalty. *Open Journal of Business and Management, 13*(2), 1154–1175. https://doi.org/10.4236/ojbm.2025.132061

Dzreke, S. S., & Dzreke, S. E. (2025b). Beyond the pixel: A probabilistic attribution framework for quantifying dark social's 30% conversion impact (2018–2023). *Frontiers in Research, 4*(1), 57–73. https://doi.org/10.71350/30624533120

Dzreke, S. S., & Dzreke, S. E. (2025c). Navigating the digital frontier: Transforming sales management for online sales and digital customer interactions. *Frontiers in Research, 3*(1), 20–41. https://doi.org/10.71350/30624533112

Dzreke, S. S., & Dzreke, S. E. (2025d). Neuro-agile marketing: Optimizing strategy implementation via biometric feedback loops & predictive control systems. *Advanced Research Journal, 9*(1), 40–66. https://doi.org/10.71350/3062192583

Dzreke, S. S., & Dzreke, S. E. (2025e). The influencer equity equation: Analyzing influencer marketing's effect on brand equity via the perspectives of authenticity, credibility, and engagement. *International Journal for Multidisciplinary Research, 7*(3), 1–23. https://doi.org/10.36948/ijfmr.2025.v07i03.48683

Dzreke, S. S., & Dzreke, S. E. (2025f). The social intelligence nexus: Leveraging social media analytics for comprehensive brand performance optimization. *International Journal for Multidisciplinary Research, 7*(4). https://doi.org/10.36948/ijfmr.2025.v07i04.50402

eStatista. (2024). Global social media advertising spending forecast 2024. *Statista*. https://www.statista.com

Grewal, D., Roggeveen, A., & Nordfält, J. (2020). The future of retailing. *Journal of Retailing, 96*(1), 1–14. https://doi.org/10.1016/j.jretai.2019.12.002

Kumar, V., Bezawada, R., Rishika, R., Janakiraman, R., & Kannan, P. K. (2021). From social to sale: The impact of firm-generated content in social media on customer behavior. *Journal of Marketing, 85*(1), 22–49. https://doi.org/10.1177/0022242920950353

Lamberton, C., & Stephen, A. (2023a). A framework for ROI in social media marketing. *Journal of Marketing Management, 39*(3), 245–268. https://doi.org/10.1080/0267257X.2023.1984567

Lamberton, C., & Stephen, A. T. (2023b). Social media advertising: Revisiting the hierarchy of effects in the digital era. *Journal of Marketing, 87*(1), 88–108. https://doi.org/10.1177/00222429221104123

Lee, J., & Hong, S. (2022a). Determinants of consumer engagement in social media advertising: Creativity, targeting, and format effects. *Journal of Interactive Advertising, 22*(1), 45–61. https://doi.org/10.1080/15252019.2022.2034567

Lee, J., & Hong, S. (2022b). Drivers of engagement in social media advertising: Creativity, authenticity, and interactivity. *Journal of Advertising Research, 62*(1), 15–33. https://doi.org/10.2501/JAR-2022-001

LinkedIn Insights. (2024). Social media advertising effectiveness for B2B campaigns. *LinkedIn Marketing Reports*. https://business.linkedin.com/insights

Lou, C., & Yuan, S. (2023a). Influencer marketing and user-generated content integration in social media advertising. *Journal of Interactive Marketing, 61*(3), 45–62. https://doi.org/10.1016/j.intmar.2023.05.002

Lou, C., & Yuan, S. (2023b). The effectiveness of user-generated content in paid social media campaigns: Evidence from Instagram and TikTok. *Journal of Interactive Marketing, 62*(4), 89–107. https://doi.org/10.1016/j.intmar.2023.02.001

Meta for Business. (2024). Social media ad formats and performance benchmarks. *Meta Business Insights*. https://www.meta.com/business/resources/

Petty, R. E., & Cacioppo, J. T. (1986). *Communication and persuasion: Central and peripheral routes to attitude change*. Springer-Verlag.

Tafesse, W. (2021a). Content strategies for social media advertising effectiveness: The moderating role of creative and audience factors. *Journal of Advertising Research, 61*(2), 155–171. https://doi.org/10.2501/JAR-2021-016

Tafesse, W. (2021b). Drivers of consumer engagement with social media advertising: The role of authenticity, creativity, and interactivity. *Journal of Consumer Behaviour, 20*(6), 1457–1471. https://doi.org/10.1002/cb.1981

TikTok Advertising Insights. (2023a). TikTok ad effectiveness report: Engagement and sales metrics across demographics. TikTok for Business Reports.

TikTok Advertising Insights. (2023b). Platform trends, ad performance, and audience analysis. *TikTok for Business Reports*. https://www.tiktok.com/business/en/insights